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Report No. 116.

Contribution from the Forest Service,
Henry S. Graves, Forester

THE DISTRIBUTION OF SOFTWOOD LUMBER IN THE MIDDLE WEST.

RETAIL DISTRIBUTION.

STUDIES OF THE LUMBER INDUSTRY.

PART IX.

BY

OVID M. BUTLER,
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THE DISTRIBUTION OF SOFTWOOD LUMBER IN THE MIDDLE WEST.

RETAIL DISTRIBUTION.

CONDITIONS GOVERNING RETAIL LUMBER DISTRIBUTION.

Much more complex conditions prevail in the retail distribution of lumber to-day than 25 or 30 years ago. Multiplicity in the number and kinds of distributors; growing public demands for distributing service; the marketing of many kinds and patterns of lumber and of a constantly growing list of other materials; the movement of mills farther and farther from consuming regions; and higher labor charges have greatly increased the cost of merchandising. These conditions have tended likewise to intensify competition.

Over 95 per cent of the lumber sold at retail in the Middle West is distributed by local yards operated as single units or in chains numbering in some instances a hundred or more yards to the company. Farmers' cooperative companies, which maintain local yards and sell on low margins, and catalogue or mail-order houses, which ship direct from central assembling yards or sawmills, are comparatively new factors in the trade.

In 1914, 11 of the central States had approximately 11,000 retail lumber yards, of which 81 per cent were in towns of 2,500 population and less. These yards represented an average investment of approximately $31,500, or a total of over $300,000,000. They handled in that year about 7,000,000,000 board feet of lumber. The average population per yard was approximately 1,500 in towns of 2,500 inhabitants and less and approximately 14,000 in cities of over 100,000 inhabitants. The average annual per capita consumption of lumber obtained through retail yards was around 300 board feet, with a value of from $7 to $10.

GENERAL CONSIDERATIONS.

The retail trade to-day.—The retail lumber trade is created primarily by the great class of consumers who require lumber in relatively small amounts for their own use and not for remanufacture or sale. It is largely a business of small sales made directly to the ultimate consumer or indirectly to him through the carpenter or contractor. Consequently the principal demand upon the trade is for construction lumber to be used in the repair and building of houses, farm buildings, fences, bridges, and a multitude of everyday miscellaneous structures. But wood-using factories, railroads, large construction companies, etc., though they obtain the bulk of their lumber in car-load lots at wholesale prices, from time to time buy small amounts through the retail trade, and small wood-using concerns often buy their entire annual requirements from retail dealers.

In the large cities retail lumber dealers often do both a wholesale and a retail business, and the line between the two classes is not clear-cut. Any definition of the retail trade must be applied broadly and in practice will be modified by local competitive conditions and compliance with the "ethics" or customs of the trade.

Most of the retail trade is handled by lumber yards, which are located at all the urban and at practically all rural centers of importance. These yards carry a stock of various kinds of lumber, lath, shingles, mill work, posts, and other building supplies in common demand locally. A relatively small amount of lumber is retailed by

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mail order or catalogue houses, or by manufacturers who ship direct from the mill or from concentration yards to consumers at distant points. This is a recent development in the lumber merchandising field, restricted largely to car-load shipments.

Changes in retailing conditions during the last thirty years.—Except for the participation of the mail-order house or the mill shipping direct to consumers, the system of retailing lumber has remained practically unchanged for 25 or 30 years. The local yard is the mechanical principle of the farmers' cooperative or stock company as well as of the individual and line yard. Economic development throughout the Middle West, however, has made radical changes in the conditions under which lumber yards must operate, and these changes have tended constantly to increase the cost of retail distribution. The modern yard is vastly different from that of 25 or 30 years ago when trade demands were less complex. At that time there was practically one commercial wood in the retail yards of the Middle West. This was white pine grown in Michigan, Wisconsin, or Minnesoa and obtained from wholesale yards in Chicago or from mills along the Mississippi River at such centrally located points as Davenport, Dubuque, Keokuk, and Clinton, Iowa; Rock Island and Quincy, Ill.; and Hannibal, Mo., to which logs were rafted from the head of the Mississippi River.

Lumber was demanded by the consumer and handled by the yards in greater bulk than at the present time, since buildings were more largely wooden, less permanent, and less diversified. Yards could be adequately stocked for from $5,000 to $8,000 and all kinds of lumber required, including lath and shingles, could be ordered from the same mill and obtained in a week or ten days. With near-by sources of supply and partial water carriage, transportation costs were low. Dimension, No. 2 and No. 3 common boards, ship lap, and No. 1 flooring formed the bulk of the lumber stock in the Prairie States, while a very small investment was represented by the other building materials such as brick, lime, etc., used to a limited extent at that time. The small stock carried often could be turned five or six times annually, while house bills ordinarily could be ordered from the mill or yard centers and delivered direct from the car before the carpenter was ready for the lumber.

The investment required for sheds likewise was small, owing to the fact that white-pine lumber could be exposed to the weather with slight damage and it was unnecessary for the dealer to house much of his stock. Furthermore, lumber ordinarily could be piled at the building site and held until required for use instead of being delivered in small lots as the building progressed. Sales were made as a rule more directly to the user. This was due to the fact that the position of the building contractor was not yet fully established and that less finished lumber was carried by the yards. The house builder usually bought his own lumber and employed his own carpenters by the day. In the larger cities a portion of the stock passed through carpenter shops, where it was reworked by hand for frames, doors, sashes, and trim.

Following 1890, however, conditions changed rapidly. A number of causes combined to necessitate heavier investments. Yellow pine from the South invaded the territory in an increasing volume, and the yards were forced to carry duplicate stocks of southern and northern pine. Mills gradually became more and more remote from the markets, involving higher transportation costs and delays in supplying retail yards throughout the territory. This made it necessary to carry larger and higher-priced stocks. As transportation developed, other species followed yellow pine until retail yards were compelled to carry four or five different kinds of wood to meet demands. This movement frequently exceeded the dealer's ability to carry in stock all the materials commonly demanded.

During the same period building became more permanent, diversified, and pretentious, and the variety of lumber grades and patterns increased very rapidly. A larger volume and variety of other structural materials were also demanded by the building trade. The dealer was under the further necessity of more completely housing his wares. The greater assortment of stock included kinds of lumber which could not be exposed to the weather. Inability to obtain lumber stocks from the mills as rapidly as formerly further increased investments by making it necessary to anticipate demands and carry stocks for a longer period.

During the prosperous period following the panic of 1893 line yards in the Northwest and Southwest increased rapidly, and yards of all kinds showed a marked increase throughout the entire territory. By 1900, for example, there were 718 yards in Nebraska, or 1 to every 1,485 of population; 1,395 yards in Iowa, or 1 to every 1,600 of population; in Illinois, exclusive of Chicago, 1,235 yards, or 1 to every 1,720 of population. This rapid increase in the number of yards tended to reduce the average volume of business. A further development which tended to reduce the average volume of business and increase the investment was the replacement of the carpenter by the planing mill. Yards in the larger cities were confronted with the planing mill as a competitor, taking a portion of their business which formerly went to the public through the carpenter. The increased investment represented by the planing mill as part of a lumber yard unit made dealers exceedingly slow to meet this competition by establishing their own planing mills. In the larger cities to-day, however, the planing mill has become an adjunct of many lumber yards.

Increased cost of doing business and a decreasing volume of trade for the average dealer led to higher charges per thousand feet in retailing lumber. Nevertheless, an increasing number of persons were attracted to the business by the steady rise in lumber prices throughout the Middle West, and particularly in the Prairie States. Following 1900, the number of yards continued to increase, and in addition to the individual and line yards, several concerns already engaged in the mail-order business entered the lumber field as catalogue houses or mail-order distributors. In communities where farmers' cooperative enterprises had become established in handling grain the cooperative distribution of lumber developed.

Despite the periods of depression which have characterized the lumber trade since 1907, this increase in the number of retail distributors has continued. Table 1 indicates the percentage increase in the number of yards in Illinois, Iowa, and Nebraska in relation to increases in population. The basic figures are taken from lumbermen's credit-rating books, which furnish the best records obtainable, and from the directories of retail lumber dealers' associations. The States of Illinois, Iowa, and Nebraska were selected as reflecting typical conditions in the region as a whole.

TABLE 1.—*Percentage increase in the number of retail yards in Illinois, Iowa, and Nebraska, 1900, 1910, and 1915.*

State.	Per cent increase in number of yards.		Per cent increase in population.
	1900–1910.	1900–1915.	1900–1910.
Illinois (Chicago excluded)	11.2	28.8	10.5
Iowa	9.7	13.2	-.3
Nebraska	31.7	35.8	11.8

TYPES OF RETAIL ORGANIZATIONS.

The retail trade in the Middle West to-day contains four types of distributing organizations, the individual yard, the line yard, the farmers' cooperative and stock company, and the catalogue house, with over 95 per cent of the lumber distributed through the first three. The business organization of these different types varies widely.

The single or individual yard.—For simplicity in classification, companies operating one branch yard at a second town or several branches in the same town, as is often done in large cities, have been classed as single yard operators, and are termed "individual dealers" or "individual yards" in this report, as distingiushed from line yard companies. In the smaller towns and rural communities these yards are commonly owned and operated by individuals, but in the larger towns and cities partnerships, stock companies, and corporations are the rule.

The individual retail lumber yard is the oldest type of organization, but is not always the most common in the Middle Western States at the present time. In the eleven States covered by this study individual yards and line yards are about equal in number, the individual yards predominating east and the line yards west of the Mississippi River. The individual yards handle, however, approximately 65 per cent of the volume of lumber distributed, the average volume handled by the individual dealer being considerably greater than that handled by a line yard.

Individual yards are more numerous in large cities, where the average volume of business per yard is greatest. Even in the smaller towns a slightly greater average volume of business is shown by such yards. This may be due to the personal element in their management. The individual dealer in a small town often tends to draw trade by his local affiliations, while the line yard is often considered in the light of a foreign corporation. Furthermore, the individual dealer often extends credit where other organizations do not.

Line yard companies.—Certain organizations maintain a line or chain of lumber yards at different points throughout a given region. Some of the stronger companies in the Middle West operate from 75 to 100 yards. Others maintain but three or four. Companies operating three or more yards have been classed as "line yards" in this report. The smaller lines of yards may be operated by an individual, a partnership, or a stock company; but as a rule the larger lines are well financed corporations which maintain general offices at large lumber-consuming or distributing centers from which the concern's policy is directed. Line yard companies, in some instances, are controlled by or have a direct interest in sawmills, from which they obtain a part of their lumber stocks.

A yard manager employed at a salary ranging from $750 to $2,000 per annum is placed in charge of each outlying yard, always subject to the instructions of the main office. The location of these yards is of paramount importance and upon their selection depends the success or failure of the concern. The conduct of the business at each yard frequently is very exacting. The manager requisitions stocks or supplies from the main office as he needs them. The main office in turn purchases the material on the open market or through its own buying offices in producing regions.

In some instances line yards cooperate in buying by establishing wholesale offices in producing regions, thereby obtaining lumber at the same price as wholesale dealers. In these highly specialized line yards contracts are often made for 90 day's supply of lumber at a fixed price, and the yard manager's requisitions are applied against the contract. At the yard the manager has the same problem of distribution as the individual dealer, but he does not have the same freedom and leeway in his business because of restrictions imposed by the general office.

Farmers' stock companies.—The farmers' stock company as a retail lumber distributor is of comparatively recent date. Its competition is as yet insignificant in the retail lumber trade of the Middle West, but is keenly felt in the communities in which such enterprises are located. These yards, however, are on the increase, and in certain regions are becoming more and more an important competitive factor.

Cooperative or stock companies engaged in retailing lumber are restricted almost uniformly to agricultural sections, the movement centering in Iowa and Nebraska, in which there are over 100 farmers' retail yards. The cooperative marketing of grain is especially common in these two States. In the entire region covered the best records available indicate that there are over 3,000 farmers' cooperative grain companies, approximately 10 per cent of which handle lumber. The extension of the farmers' cooperative movement to the handling of lumber is in some instances a natural outgrowth of their cooperative selling of grain; in other instances it has resulted from the feeling that local yards were charging excessive prices for lumber.

There are two types of farmers' stock companies. One is the strictly cooperative company, in which all or a part of the net earnings are distributed in proportion to the amount of merchandise bought from or sold to members. As a rule these companies limit the voting power of their members and the amount of stock any member can hold in order to prevent a relatively few members from controlling a majority of the stock. In most instances such companies sell lumber to nonmembers as well as to members, distributing the profits on the same basis. The second type of organization is the stock company organized and operated on a profit rather than on a cooperative basis. The principle of both types of organization is to operate on a small margin, thereby furnishing the members or the community with lumber at a reduced price.

When the farmers' companies began to show increased growth they encountered much difficulty in buying lumber stocks. Many regular retail dealers refused to patronize mills which sold lumber to cooperative companies. The companies are still generally opposed by the retail trade, but because of the competition among mills and wholesale dealers to sell lumber they have encountered little difficulty in obtaining adequate stocks during the past four or five years.

Catalogue houses.—The catalogue or mail-order house is likewise of recent date in the field of retail lumber distribution. Owing to its broad field of potential operations, it has made itself felt both directly and indirectly in the retail lumber trade in the Middle West. Less than 10 such companies are doing a strictly mail-order lumber business in the territory studied, although 40 or more companies and mills compete with the retail trade by direct shipments when possible. The amount of lumber shipped into the region by distant mills selling direct to the retail user, however, is insignificant compared with the total amount consumed. In addition, there are a number of companies, specializing in "ready-cut" houses, which sell through catalogue advertising and ship direct from the factory to the consumer.

The catalogue houses have places of business where stocks of building materials are carried and from which business is solicited by mail and catalogue advertising. These companies sometimes have distributing yards at points in the region, sending the lumber to the consumer either from redistributing points or from the mills with which they deal. They are handicapped in meeting demands for less than carload lots by the much higher freight rate applicable to such shipments. The amount of lumber distributed in the Middle West by mail-order houses and companies shipping direct to the retail consumer is less than 5 per cent of the total amount sold by the retail trade. This estimate is based upon figures obtained from a number of the mail-order and direct-selling companies operating in the region. Of the amount thus sold, the figures indicate that not over 10 per cent was in less than carload lots.

There is another agency which should be mentioned, the small sawmill, of which there are many throughout the forest belts in the Central States. These mills sell all or a part of their lumber to local consumers direct. They are not retail distributors in the broad sense, but primarily lumber manufacturers.

NUMBER OF YARDS AND VOLUME OF TRADE.

Table 2, based on figures obtained during the summer of 1915, gives the approximate number of individual and line yards in each State included in the study and the ratio of line yards to the total number of yards. Farmers' cooperative companies are included in the figures given for individual yards. In the 11 States there are approximately 300 such companies which handle lumber, of which about 40 per cent are in Iowa and Nebraska.

TABLE 2.—*Number of line and individual retail lumber yards in the Middle West.*

State.	Line yards.	Individual yards.	Total.	Ratio of line yards to total yards.
	No.	*No.*	*No.*	*Per ct.*
Indiana	86	556	642	13.40
Illinois	401	1,190	1,591	25.20
Wisconsin	211	444	655	32.21
Total	698	2,190	2,888	24.17
Missouri	385	589	974	39.53
Oklahoma	645	205	850	75.88
Kansas	621	523	1,144	54.28
Total	1,651	1,317	2,968	55.63
Nebraska	524	451	975	53.74
Iowa	805	775	1,580	50.95
Total	1,329	1,226	2,555	52.02
Minnesota	672	417	1,089	61.71
North Dakota	607	200	807	75.22
South Dakota	498	164	662	75.23
Total	1,777	781	2,558	69.47
Grand total	5,455	5,514	10,969	49.73

It will be noted that individual dealers are more strongly represented in the older and more thickly settled States, while the line yard companies are strongest in the western and more recently settled regions. Throughout the entire region, however, the individual dealers are numerically stronger in cities of 25,000 population and over, it being the policy of the line yard companies to confine their operations to small country towns. There are two primary reasons for this policy: (1) The desire to avoid points where competition is keen, as it usually is in large cities, and to locate in developing communities where a good volume of business is assured for a considerable period of years; (2) the desire to avoid the large investment involved in a city yard, which is ordinarily much greater than in a country yard. The amount of money required to operate a line of city yards is very great, and the risks are relatively greater per yard. Furthermore, line yard companies desire to be in a position to remove a yard with as small loss as possible when it becomes consistently unprofitable.

The estimated amount of lumber, exclusive of lath, shingles, millwork, and other timber products, handled from these yards in 1914 was 7,067,751,000 board feet. Table 4 gives in detail the estimated volume of lumber distributed through yards, grouped according to the size of the places in which they are located; the estimated sales of all merchandise by the yards; the average investment per yard in each group; and other figures. These figures, are based upon the actual records of a large number of companies, as shown by the table, distributed throughout the territory. Table 3 summarizes the regional figures for the total number of yards and the total amount of lumber distributed.

TABLE 3.—*Estimated amount of lumber distributed annually by retail yards in Indiana, Illinois, Wisconsin, Minnesota, North and South Dakota, Iowa, Nebraska, Missouri, Oklahoma, and Kansas.*

At points of a population of—	Total number of yards.	Amount distributed in board feet.
(1) Less than 2,500	8,785	3,702,812,000
(2) 2,500 to 10,000	1,173	1,025,200,000
(3) 10,000 to 25,000	381	527,747,000
(4) 25,000 to 100,000	316	629,242,000
(5) Over 100,000	314	1,169,943,000
Total (all yards)	10,969	7,067,751,000

TABLE 4.—*Amount of lumber distributed and investment represented by retail lumber yards in Middle West. Data based on 1914 figures.*

Classification.	Total number of yards.	Amount of lumber distributed by retail yards.			Total sales all merchandise.			Average investment per yard.					Estimated total investment all yards.	Average population per yard.	Number of yards per 10,000 population.	Per capita consumption of lumber through retail yards (board feet).
		Number of yards reporting.	Average per yard (1,000 feet).	Estimated total all yards (1,000 feet).	Number of yards reporting.	Average per yard.	Estimated total all yards.	Number of yards reporting.	Real estate, buildings, equipment.	Stock carried.	Outstanding accounts.	Average total investment per yard.				
Group I.[1]																
Indiana, Illinois, Wisconsin	1,947	105	479	932,613	142	$30,282	$58,959,054	183	$5,712	$10,268	$8,190	$24,170	$47,058,990	2,257	4.4	212
Missouri, Oklahoma, Kansas	2,345	191	322	755,090	253	18,154	42,571,130	320	4,265	7,961	4,964	17,190	40,310,550	1,726	5.8	186
Nebraska, Iowa	2,178	104	533	1,160,874	274	29,695	64,675,710	199	5,005	11,662	8,460	25,127	54,726,606	1,055	9.5	505
Minnesota, North Dakota, South Dakota	2,315	248	369	854,235	293	25,816	59,764,040	312	4,604	9,047	8,595	22,246	51,566,228	920	10.9	401
Total	8,785	648	[2] 421	3,702,812	962	25,810	225,969,934	1,014	4,875	9,709	7,528	22,112	193,662,374	1,470	6.8	288
Group II.[1]																
Indiana, Illinois, Wisconsin	463	29	1,157	535,691	38	60,049	27,802,687	43	12,078	17,720	17,015	46,813	21,674,419	3,444	2.9	336
Missouri, Oklahoma, Kansas	367	24	592	217,264	44	30,571	11,219,557	50	8,689	11,654	8,522	28,865	10,593,455	2,412	4.1	245
Nebraska, Iowa	208	9	850	176,800	22	44,239	9,201,712	19	9,425	15,053	18,119	42,597	8,860,176	2,009	5.0	423
Minnesota, North Dakota, South Dakota	135	7	707	95,445	6	37,365	5,044,275	10	12,976	14,152	15,291	42,419	5,726,565	2,835	3.5	249
Total	1,173	69	[2] 874	1,025,200	110	45,412	53,268,231	122	10,650	14,938	14,355	39,943	46,854,615	2,796	3.6	313
Group III.[1]																
Indiana, Illinois, Wisconsin	170	7	1,651	280,670	15	72,599	12,341,830	19	13,589	23,891	15,623	53,103	9,027,510	5,553	1.8	297
Missouri, Oklahoma, Kansas	110	9	940	103,400	13	48,491	5,334,010	15	14,270	19,108	12,163	45,541	5,009,510	3,012	3.3	312
Nebraska, Iowa	61	5	1,657	101,077	6	74,272	4,530,592	4	18,399	30,000	19,001	67,400	4,111,400	2,629	3.8	630
Minnesota, North Dakota, South Dakota	40	4	1,065	42,600	6	71,220	2,848,800	6	10,322	24,520	23,225	58,067	2,322,680	3,223	3.1	330
Total	381	25	[2] 1,385	527,747	40	67,340	25,055,232	44	14,212	23,554	15,963	53,729	20,471,100	4,107	2.4	337

[1] Group I includes all yards at points of less than 2,500 population; Group II includes all yards at points of 2,500 to 10,000 population; Group III includes all yards at points of 10,000 to 25,000 population; Group IV includes all yards at points of 25,000 to 100,000 population; Group V includes all yards at points of over 100,000 population.

[2] Average of total number of yards in group.

TABLE 4.—*Amount of lumber distributed and investment represented by retail lumber yards in Middle West. Data based on 1914 figures*—Continued.

Classification.	Total number of yards.	Amount of lumber distributed by retail yards.			Total sales all merchandise.			Average investment per yard.					Estimated total investment all yards.	Average population per yard.	Number of yards per 10,000 population.	Per capita consumption of lumber through retail yards (board feet).
		Number of yards reporting.	Average per yard (1,000 feet).	Estimated total all yards (1,000 feet).	Number of yards reporting.	Average per yard.	Estimated total all yards.	Number of yards reporting.	Real estate, buildings, equipment.	Stock carried.	Outstanding accounts.	Average total investment per yard.				
Group IV.[1]																
Indiana, Illinois, Wisconsin	139	24	2,567	356,813	82	$101,819	$14,152,841	40	$21,906	$26,614	$23,471	$71,991	$8,006,749	6,821	1.5	376
Missouri, Oklahoma, Kansas	78	15	1,423	110,994	17	52,378	4,085,484	17	20,241	17,548	15,954	53,743	4,191,954	5,648	1.8	252
Nebraska, Iowa	91	13	1,585	144,235	23	89,770	8,169,070	20	29,936	32,447	28,841	91,224	8,301,384	4,562	2.2	347
Minnesota, North Dakota, South Dakota	8	(3)	2,150	17,200	(3)	86,310	690,480	(3)	23,631	26,128	23,118	72,877	583,016	9,808	1.0	219
Total	316	52	[2] 1,991	629,242	74	86,310	27,097,875	77	23,631	26,128	23,118	72,877	21,083,103	5,957	1.7	334
Group V.[1]																
Indiana, Illinois, Wisconsin	169	30	4,531	765,739	38	161,860	27,354,340	38	29,853	60,164	33,083	123,100	20,803,900	16,525	.6	274
Missouri, Oklahoma, Kansas	68	17	3,222	219,096	17	90,719	6,168,892	17	23,339	24,711	30,414	78,464	5,335,552	13,756	.7	234
Nebraska, Iowa	17	5	2,515	42,755	5	94,729	1,610,393	5	31,147	29,615	22,175	82,937	1,409,929	7,300	1.4	345
Minnesota, North Dakota, South Dakota	60	23	2,586	155,160	23	112,250	6,735,000	23	18,653	22,789	31,534	72,976	4,378,560	8,602	1.2	306
Total	314	75	[2] 3,647	1,169,943	83	129,436	41,868,625	83	25,385	40,693	30,668	96,746	31,927,941	13,912	.7	208
Grand total.																
Indiana, Illinois, Wisconsin	2,888	195	994	2,871,526	265	64,452	140,610,752	323	11,693	19,950	14,423	46,072	106,571,568	3,696	2.7	269
Missouri, Oklahoma, Kansas	2,968	256	474	1,405,844	344	26,166	69,379,073	419	6,421	9,869	7,125	23,415	65,441,021	2,316	4.3	213
Nebraska, Iowa	2,555	186	636	1,625,741	330	36,648	88,187,477	247	8,025	14,266	511,304	33,595	77,409,495	1,337	7.5	476
Minnesota, North Dakota, South Dakota	2,558	232	455	1,164,640	329	33,081	75,082,595	351	5,911	10,399	10,046	26 356	64,577,049	1,265	7.9	360
Grand total	10,969	869	[2] 644	7,067,751	1,268	39,478	373,259,897	1,340	7,842	13,248	10,404	31,494	313,999,133	2,185	4.6	295

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[1] Group I includes all yards at points of less than 2,500 population; Group II includes all yards at points of 2,500 to 10,000 population; Group III includes all yards at points of 10,000 to 25,000 population; Group IV includes all yards at points of 25,000 to 100,000 population; Group V includes all yards at points of over 100,000 population.

[2] Average of total number of yards in group.

[3] Based on average for other States in Group IV.

Table 4 does not take into consideration the small amount of lumber distributed by catalogue houses or by mills shipping into the territory direct to consumers. The total sales in dollars apply to all merchandise. A greater number of dealers were able to give figures on their total sales than on sales of lumber only.

The per capita consumption by different groups of towns and cities was necessarily determined somewhat arbitrarily. The population of all the towns in the different groups, as shown by the 1910 census, was first ascertained and then the rest of the population, classed in the census as "other rural," distributed to the various groups in the same proportion as the number of towns in the group bore to the total number of towns in the State. This assumes that each town draws equally from the country population.

Taking Table 4 as a basis, Table 5 was prepared. This is simply an extension of the averages obtained for the 11 Middle Western States to the entire United States, to give an idea of the scope and magnitude of the retail lumber trade throughout the country. Obviously, figures thus obtained afford no more than an approximate guide; but since the States in which data were gathered constitute a typical lumber-consuming territory, the totals for the country are believed to be more nearly correct than any hitherto available.

TABLE 5.—*Estimated volume of trade, investment, pay roll, and credit burden of the retail lumber business of the United States, based on statistics obtained in 11 Middle Western States, 1914.*

Item.	11 States studied.	Total United States.
Population (Thirteenth Census)	23,968,403	91,972,266
Total number of retail lumber yards	10,969	42,090
Total distribution of lumber, in feet (including hardwoods)	7,067,751,000	27,120,374,137
Value of all merchandise sold	$373,259,897	$1,432,198,225
Total investment	$313,999,133	$1,204,877,473
Total number of persons employed [1]	32,907	126,264
Total salaries paid	$33,104,442	$127,021,584
Total outstanding accounts	$114,121,476	$437,906,928

[1] No figures were obtained by the Forest Service on the number of persons employed in retail lumber yards. Statistics obtained by the secretary of the Western Retail Lumberman's Association showed the average number employed in nine Western States to be three per yard, and this has been accepted as the best available, although believed to be slightly low as applied to the whole United States.

LUMBER CONSUMPTION AND COST PER CAPITA.

The average per capita consumption of lumber through retail yards in the region approximate 300 board feet. This does not include shingles, lath, and millwork.

The low per capita consumption in towns of less than 2,500 and cities of over 100,000 inhabitants can not be explained. However, the figures indicate conclusively that the average consumption for the entire region centers around 300 board feet. Variations in the amounts shown for Groups III, IV, and V affect the final average very slightly, since they constitute only 9 per cent of the total number of yards. Groups I and II considered together show an average per capita consumption of 293 board feet through the retail trade at points of less than 10,000 inhabitants. This is representative of the country trade in Minnesota, the Dakotas, Iowa, Nebraska, Missouri, and Kansas, for which distribution costs and the average prices received for lumber are given later. Accepting $30.75 as the average retail price of lumber throughout this region in the class of towns in question, the average yearly retail cost of lumber amounts to $9 per capita.

Applying the same calculation to large cities and selecting Chicago as an example, the average yearly retail cost of lumber amounts to $7.28 per capita. A fluctuation of $5 per thousand feet in the retail price of lumber therefore affects the average per capita cost of raw materials to the extent of $1.35 annually for city dwellers and $1.45 annually for country dwellers.

Table 4 shows that the greatest per capita consumption of lumber through retail yards is in the States of North and South Dakota, Minnesota, Iowa, and Nebraska, where the average is 418 board feet, while the lowest per capita consumption—212 board feet—is in Oklahoma, Missouri, and Kansas. A decided difference between the two regions is shown further in the tables of cost on page 38, from which it will be noted that the average volume of business for country yards in Oklahoma, Kansas, and Missouri is considerably less than in the States farther north.

TRADE POLICIES.

Location of yards.—Of the 10,969 retail yards in the States covered, 81 per cent are located in towns of less than 2,500 population, 10 per cent in towns of 2,500 to 10,000 population, and 3 per cent each in towns of 10,000 to 25,000, 25,000 to 100,000, and over 100,000 population. Ninety-one per cent of all the yards, therefore, are in towns of less than 10,000 inhabitants. The population served by the yards in towns of less than 2,500 population consumes 52 per cent of the lumber distributed by retailers in these States. According to the Thirteenth Census, 54 per cent of the population of the United States is in towns of less than 2,500 or in the country. The population of the point at which a yard is located, however, is not an index to the amount of business available. Country yards are located with the idea of obtaining business from outlying districts, and they often draw trade within a radius of 30 to 40 miles. This is particularly true of less densely populated regions in the Prairie States.

Number of yards in relation to population.—The average population per yard, according to Table 4, is considerably less in towns of less than 2,500 people than in the larger towns. This would be expected from the scattered nature of the population in rural districts and the greater number of points required to reach them. As shown by the following summary from Table 4, the number of inhabitants per yard increases with the size of the town:

	Population per yard.
Group I. Less than 2,500 people	1,470
II. 2,500 to 10,000	2,796
III. 10,000 to 25,000	4,107
IV. 25,000 to 100,000	5,957
V. Over 100,000	13,912

Stocks carried.—Lumber sales form but part of the business transacted by the average lumber yard. In the larger cities, where the retail trade is more specialized, the lumber and its products constitute from 85 to 95 per cent of the sales of the average yard, the remaining small percentage covering a few special side lines. Figures obtained on 22 annual operations of seven retail lumber companies in Chicago covering 1912, 1913, and 1914 indicate the percentage of the different classes of lumber handled by large city yards:

	Percentage of total sales.
Lumber	87.06
Lath	1.2
Shingle	2.3
Millwork	5.76
Lumber and its products	96.32

In the larger cities other building supplies are carried as a rule by different business organizations; while in the smaller towns and country districts the retail lumber yard carries a much greater variety of stock and becomes a general building supply depot. In many instances commodities other than those used in the building trade are handled. The list given below covers the classes of merchandise found in country and small town yards. Every yard does not by any means carry all of these supplies. Stocks vary greatly between yards in different communities, in accordance with the policy of the dealer and the demands of his consumers.

Classes of merchandise found in country retail lumber yards.

Agricultural implements.
Barb wire.
Bee supplies.
Brick.
Buggies.
Cement.
Cement blocks.
Chatts.
Coal.
Coffins.
Columns.
Corrugated iron.
Crushed rock.
Doors.
Drain tile.
Furniture.
Gates.
Glass.
Grain.
Hair.
Hardware.
Harness.
Hog troughs.
Incubators.
Ladders.
Lath.
Lead (white).
Lightning rods.
Lime.
Lumber.
Metal lath.
Metal sundries.
Millwork.
Molding.
Nails.
Paint and brushes.
Paper (tar, building, felt, carpet lining).
Plaster.
Prepared roofing.
Pickets.
Posts and poles.
Pumps.
Salt.
Sand.
Sawdust.
School desks.
Screen doors.
Sewer pipe.
Shingles.
Silos.
Steel culverts.
Steel roofing.
Steel tanks.
Stucco.
Wagon bottoms and sides.
Wall board.
Windows.
Wooden gutters.
Woven wire.

Retail yards in the country districts, therefore, handle a smaller percentage of lumber and its products in their total business than city yards. Figures obtained from line yards throughout the Northwest and Southwest show that lumber forms from 35 to 45 per cent of the total sales. If all timber products are included, the proportion ranges from 50 to 60 per cent. The figures given below show the percentage of total sales from each class of merchandise. They were taken from the records of two large line-yard companies in Minnesota and the Dakotas, and are for the year's business of 1914.

Distribution of total sales.

COMPANY NO. 1.	Per cent.
Lumber	39.1
Coal	24.7
Cement	8.3
Sundries	5.6
Shingles	5.0
Tile culverts	2.6
Molding	2.4
Sash	1.8
Posts	1.8
Roofing	1.2
Lath	1.4
Doors	1.2
Paper	1.2
Frames	.8
Brick	.8
Sawdust	.8
Wire fencing	.4
Hardware	.4
Lime	.4
Bee supplies	.1

COMPANY NO. 2.	Per cent.
Lumber	45.1
Coal	17.6
Brick, cement, lime, plaster, etc	14.85
Shingles	5.6
Sewer pipe	2.3
Lath	2.1
Sash	1.8
Posts	1.8
Hardware	1.8
Molding	1.5
Doors	1.2
Wire fencing	1.0
Frames	.8
Paper	.7
Culverts	.7
Roofing (patent)	.7
Wood	.4
Bee supplies	.05

The average sales of lumber in 165 line yards in Minnesota and the Dakotas which kept a separate record of the sales of different classes of merchandise was 42 per cent in 1914. With other timber products included in the average was 55 per cent.

The figures given below were taken from records of line-yard companies operating in Nebraska and Iowa, and indicate that the relative amount of lumber handled in country yards in that territory in 1914 did not vary greatly from the figures given for Minnesota and the Dakotas:

Distribution of total sales.

	Per cent.
Lumber	45.90
Coal	16.05
Fence wire	5.46
Shingles	5.34
Cement and plaster	5.24
Posts	5.18
Sash, doors, and molding	4.16
Lime, brick, sand, cement, and blocks	3.37
Paints and oils	2.20
Plaster board	2.05
Building paper	
Lath	1.18
Gates and tanks	.96
Steel culverts	.64
Lightning rods	.48
Silos	.48
Steel roofing and ceiling	.49
Prepared roofing	.32
Screen doors and windows	.29
Glass	.11
School desks	.06
Hog troughs	.03
Ladders	.01

The records of one of the largest line-yard companies operating through Missouri, Oklahoma, and Kansas showed that of the total sales made by over 70 yards from 1912 to 1914, inclusive, 44 per cent was lumber.

COSTS OF RETAIL LUMBER DISTRIBUTION.

Retail distribution, including the cost of doing business and the dealer's profit, adds from $5 to $7.50 per thousand feet to the cost of lumber in the Middle West. In the larger cities this cost is around $6 per thousand feet, while in rural districts, where lumber is distributed by smaller yards, it averages close to $7.

The net profit taken by the dealer was found to range from an average of about $1 per thousand feet in the city trade, equivalent to 7 per cent on the investment, to approximately $3 per thousand feet, or from 10 to 12 per cent on the investment, in the rural trade. The cost of doing business varied from 15 per cent of the sales in country trade to around 18 per cent in the cities.

The volume of business transacted by a yard has an important bearing on the cost of merchandising. The duplication of yards in small towns often tends to increase distributing costs. Delivery or cartage adds $1 per thousand feet, more or less, to distributing costs, while the carrying of credit appears to impose a charge of from 40 to 60 cents per thousand.

The actual margin at which different grades of lumber are handled varies greatly. Material sold in the heaviest volume is ordinarily handled on the smallest margin, while items sold in small amounts or for special uses bring margins as high as $15 or $20 per thousand feet.

Of the final prices paid for lumber by consumers, from 50 to 60 per cent is taken by the manufacturer, 2 to 4 per cent by the wholesaler, and 20 to 25 per cent each by the railroad and the retailer. These proportions vary widely in different regions and on the various species and grades.

Local retail yards appear essential to the distribution of the bulk of lumber required in relatively small amounts, but the elimination of intermediate handling wherever possible is an economy to which the public is entitled.

The gross cost of retail lumber distribution, considered from an economic standpoint, is the difference between the delivered wholesale price paid by the retail dealer and the net price received from its resale. It is, therefore, the total charge levied by the retail dealer and includes all items of expense incident to buying, handling, and reselling lumber plus the net profit realized. The costs presented are based upon an extensive collection of statistics from retail lumber operations of large city yards in Chicago, Kansas City, and Minneapolis, and of town and country yards throughout the States of Missouri, Oklahoma, Kansas, Iowa, Nebraska, North and South Dakota, and Minnesota. Cost records from approximately 2,500 annual operations were transcribed by representatives of the Forest Service and correlated, being grouped by cities and regions and by types of operation. In addition, cost statements were voluntarily submitted by several hundred retail dealers in the States mentioned and in the additional States of Indiana, Illinois, and Missouri. In a large number of cases these statements were either incomplete or not clearly comparable. Hence, the two sets of costs have been kept separate. Unless otherwise noted, therefore, all cost statistics here given have been obtained directly by representatives of the Forest Service from the records of the various companies.

In undertaking a study of this scope many difficulties had to be overcome. It was found at the outset that no standard system of accounting is followed by retail lumber dealers. Practically every dealer uses a different system or some modification of a general system. The form of cost statements varied widely, from vest-pocket notebooks to highly specialized and detailed records. One similarity in the cost statements was the use of sales as the base, for expressing the percentage cost of doing business, but this practisc was by no means universal. Some dealers, although in the minoriity figure operating expenses on the cost rather than the sale price of merchandise, while others use gross sales instead of net sales as their basis.

To combine costs from these diversified records upon a comparable basis for ascertaining averages, it was necessary that the various expenditures be carefully analyzed and classified. In the absence of any standard accounting system in general use and because of insufficient time for the detailed segregation of all costs, an elementary standard was adopted by which the various items could be conveniently and logically grouped. Net sales were accepted as the basis for expressing costs in terms of percentages, since this accords with the common practice and is recognized by most standard schools of accounting. In addition to current expenses, such as salaries, labor, and teaming, miscellaneous expenses, etc., rent actually paid was considered as an operating expense and grouped with insurance and taxes. Depreciation on buildings owned and upon personal property was likewise included. Losses from bad accounts were considered an expense. Where salaries of executives or owners were not charged upon the books of the concern or were clearly insufficient or excessive, they were adjusted to accord with the general average in the trade commensurate with the size and responsibility of the business. Interest on capital borrowed or owned was not considered an operating expense but as part of the net profit.

In the case of city yards in Chicago, Minneapolis, and Kansas City, expenses were subdivided as follows:

(1) *Salaries.*—Of those directly in charge of the management of the company and of the clerical force.

(2) *Labor and teaming.*—Wages paid yard foreman, all yardmen, teamsters, and the necessary expense incidental to teaming.

(3) *Insurance, taxes, and rent.*—Charged as an operating expense where actually paid.

(4) *Depreciation.*—Charged off uniformly at 10 per cent on the value of buildings owned, and 15 per cent on the value of equipment or personal property employed in the business. These percentages were taken as fair averages of the conditions found in the business. Depreciation on stock was not considered.

(5) *Office supplies.*—All expenses incident to the maintenance of the office—stationery, stamps, etc.

(6) *Loss accounts.*—All accounts long outstanding on which hope of further collections had been abandoned.

(7) *Repairs and renewals.*—Under this head were included all expenses incurred for repairs and renewals.

(8) *Miscellaneous expense.*—All remaining expenses necessary for the proper transaction of the business were covered under this head including such items as telephone, telegraph, advertising, fuel, light, donations, livery, legal costs (for collections), demurrage, association dues, etc.

The method of classifying costs at line yards was of the same general nature, with the exception that office supplies were included in miscellaneous expenses. The salary item at the yard included the salary of the local manager. Two main divisions, however, were adopted for line yards: (1) Yard operating expenses, which include all expenses incurred by the local yards of the company, and (2) general office expenses, which include all costs incident to the main or central office of the concern. Line yard companies in some cases do not carry the general office as an expense, but regard it as offset by the rebilling charges assessed against the merchandise distributed among the yards. This, of course, is not correct accounting. The maintenance of the general office is a direct operating expense, and has been so considered in the line yard statements presented. The expenses of the main or central office from which the auditing, purchasing, and general policy are conducted were subdivided as follows:

(1) *Management salaries.*—Compensation of officers in charge.

(2) *Clerical salaries.*—Salaries of the clerical force employed at the general office.

(3) *Auditor's or superintendent's salary and expenses.*—All expenses incidental to the proper auditing of records by the auditor, including traveling expenses to the yards.

(4) *Rent.*—The amount actually paid for rent of the general office.

(5) *Miscellaneous expense.*—Remaining expenses incurred at the general office.

The annual gross margin was readily obtained by deducting the inventory values at the beginning of the year and the purchases made during it from the sum of the inventory values at the close of the year and the total yearly sales. Gain or loss on inventory is therefore covered in the gross margin. Having ascertained the annual gross margin and the operating expenses segregated under the foregoing items, an average profit and loss statement for groups of yards was readily obtained, both in dollars and cents and in percentages of net sales. This, however, applied to the business as a whole and included not only the handling of lumber but all other classes of merchandise carried in stock.

To ascertain the average cost of merchandising lumber it was necessary to apportion against lumber its share of the total costs. In the absence of any authentic basis from which the relative cost of handling lumber as compared with other materials carried in stock could be determined it was assumed that the cost of merchandising one dollar's worth of lumber is the same as the cost of merchandising one dollar's worth of the other commodities handled. Although not a strictly correct assumption, this appeared to be the most practicable method of segregating the cost data and is believed to give results close to the actual figures. No record of comparative costs ascertained upon either a general or scientific basis could be obtained from the dealers consulted. There is a great difference of opinion upon this point, some dealers believing that it costs more to merchandise lumber than side lines, others believing that it costs less.

The operating expenses were consequently prorated against lumber in the ratio which the total net sales of lumber bore to the net sales of all classes of stock. For example, if lumber sales amounted to 50 per cent of the total business, 50 per cent of the operating expenses were charged to lumber. To express this expense in terms of a thousand feet of lumber it was necessary to ascertain the total number of feet sold as well as the net receipts from lumber sales, a procedure which involved considerable difficulty in some instances.

The dealers in Chicago and Minneapolis kept separate records in most cases so that the data could be obtained directly, but in Kansas City none of the dealers kept a separate account of their lumber sales. Hence it was necessary to total the daily delivery slips to determine the average selling price of lumber. This figure was averaged from several companies and used with the operating costs of the various concerns to obtain the cost of merchandising a thousand feet of lumber. The line yards operating in Iowa and Nebraska had their records in such form that it was possible to obtain their purchases in feet of lumber, thousands of pieces of shingles and lath, number of posts, etc., with the corresponding sale values of each commodity, permitting a correct and accurate prorating of expenses.

The problem of ascertaining the costs of merchandising lumber per thousand feet in line yards operating throuhout Missouri, Oklahoma, and Kansas was unusually difficult, owing to the fact that no single concern visited had records showing the value of their lumber sales as distinguished from other stock. To obtain this information with precision would have required many months of labor in totaling sales tickets. The yearly inventory less 50 cents per thousand for piling lumber in the yard was, therefore, accepted as a true index of the grades, sizes, and purchasing price of the lumber sold. The feetage and value of the stock inventoried was obtained at 162 yards. The gross profit actually obtained on sales was converted to a percentage of costs, and this gross gain plus the purchasing price was taken as an average selling price. The expense of merchandising per thousand feet was then obtained as in the other cases. The costs of merchandising lumber by the line yards in Minnesota and North and South Dakota were obtained more readliy and accurately. The concerns in this region as a rule kept records showing their total sales of lumber in feet and dollars, thus making it possible to arrive at an average selling price per thousand feet and to prorate the costs of merchandising not only against lumber but in some cases against all the commodities handled.

URBAN RETAIL TRADE.

CHICAGO.

Conditions in the retail lumber trade at Chicago are those of a highly competitive market where the socalled ethics of the trade are commonly violated in the struggle for business. This general term covers the definitions of what constitutes wholesale and retail trade and the qualifications as to capital, permanency, etc., requisite to legitimate standing as a dealer, which retail associations formerly laid down and sought to enforce. Their purpose, of course, was to build up exclusive channels of distribution from which outside competition was debarred.

The average costs of retail lumber merchandising in Chicago are given in Table 6, which is based on 22 annual operations of 7 different companies located in different sections of the city. These concerns were taken as representative of the larger yards in Chicago, and the volume of business transacted is doubtless higher than the average of all Chicago yards, of which there are are some 142. In these twenty-two annual operations, covering 1912 to 1914, inclusive, the value of the yearly sales varied approximately 14 per cent from the average for the period.

The Chicago retail market differs from that of Kansas City and Minneapolis in that large quantities of two species, hemlock and yellow pine, compete for the business. Yellow pine sales, however, were predominant at the yards studied. While the number of yards is only one to approximately 15,355 inhabitants, competition is much more severe than might appear to be the case, due to the fact that in large cities retailers as a whole deal with but a limited number of customers. About 80 per cent of their sales are made either to contractors or carpenters or through architects; the remaining 20 per cent being in small lots to numerous consumers. In the country on the other hand, the dealers come into more direct contact with the ultimate users of the lumber.

TABLE 6.—*Average costs of retail lumber distribution as shown by 22 annual yard operations of city yards in Chicago, Ill.*

[Basis: 1912, 6 companies, 7 yards; 1913, 6 companies, 7 yards; 1914, 7 companies, 8 yards.]

Account statement.	Average costs per yard in dollars, total business annual.	Average prorated costs per thousand feet b. m. lumber only.	Average expense expressed in per cent of total sales.
Total investment	$194,281.46	....	....
Net sales	329,830.61	$27.15	....
Gross profit	71,705.18	5.90	$21.74
Operating expenses:			
Salaries	14,977.48	1.23	4.54
Labor and teaming	27,201.78	2.24	8.25
Insurance, taxes, and rent	6,888.13	.57	2.09
Repairs and renewals	310.48	.03	.09
Loss accounts	1,029.19	.08	.31
Depreciation on equipment	2,305.63	.19	.70
Miscellaneous expense	4,783.74	.39	1.45
Total operating expense	57,496.43	4.73	17.43
Net operating profit	14,208.75	1.17	[1] 4.31
Interest on investment at 6 per cent	11,656.89	.96	3.53
Net profit over and above interest on investment at 6 per cent	2,551.86	.21	.78
Number times stock turned annually (approximate)	2.34	....	....

[1] Equivalent to 7.31 per cent interest on investment.

The range shown for the companies and years studied is indicated below:

Item.	Per cent of sales.					
	1912		1913		1914	
	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.
Gross profit	22.04	26.21	18.03	24.30	15.96	29.17
Operating expenses	12.19	20.21	12.43	24.97	14.00	28.59
Net profit	2.66	10.16	.05	5.75	−7.16	7.62

In 1914, apparently in consequence of recurring trouble in the building trades, the same companies showed an average decrease of 24 per cent in business under 1913, while the costs of merchandising rose to the highest figure of the period.

In the Chicago yards studied the average investment was distributed as follows, by percentages:

	Distribution (per cent).
Merchandise investment	56.92
Outstanding accounts (including both bills receivable and accounts receivable	31.88
Real estate and improvements	5.83
Personal property	5.37
Total	100.00

It will be noted that outstanding accounts represent 31.88 per cent of the average investment. This is equivalent to 18.56 per cent of the annual sales. The percentage represented by real estate and improvements is very small, most of the concerns occupying leased ground.

To ascertain the number of times the stock was turned annually, the total cost of the stock sold was divided by the average monthly inventory in dollars wherever possible. In general, however, stocks are considerably reduced at inventory time so that the figures, while furnishing an index to this feature of the business, show a higher rate of stock turnover than actually took place. In 1912 the range as thus obtained was from 1.44 to 4.45 turns, with an average of 2.44; in 1913, from 1.51 to 4.40 turns, with an average of 2.68; and in 1914 from 0.93 to 3.97 turns, with an average of 1.97. The average for the period was 2.34.

MINNEAPOLIS.

Minneapolis and St. Paul are essentially northern pine markets, the retail sales of this species forming approximately 75 per cent of the lumber used. In the two cities there are 62 retail lumber dealers, a yard to every 8,326 people. Competitive conditions are therefore indicated, although the market as reflected by the curvers has been more stable than either the Chicago or Kansas City market. In Table 7 are shown average distribution costs compiled from 49 annual operations of 5 different companies at these points. The operations cover the years from 1912 to 1914, inclusive. Most of the yards are located in Minneapolis, and showed better average returns than the yards from which data were obtained in St. Paul.

TABLE 7.—*Average costs of retail lumber distribution as shown by 49 annual yard operations in Minneapolis.*

[Basis: 1912, 5 companies, 15 yards; 1913, 5 companies, 17 yards; 1914, 5 companies, 17 yards.]

Account statement.	Average costs per yard in dollars, total business, annual.	Average prorated costs per 1,000 feet b. m., lumber only.	Average expense expressed in per cent on sales, total business.
Total investment	$58,913.40		
Net sales	97,799.94	$26.77	
Gross profit	21,388.85	5.85	21.87
Operating expense:			
Salaries	5,343.52	1.46	5.46
Labor and teaming	6,552.14	1.79	6.70
Insurance, taxes, and rent	1,945.91	.53	1.99
Repairs and renewals	45.28	.02	.05
Loss accounts	232.33	.06	.24
Depreciation	877.09	.24	.89
Miscellaneous	2,912.85	.80	2.98
Total operating expense	17,909.12	4.90	18.31
Net operating profit	3,479.73	.95	[1] 3.56
Interest on investment at 6 per cent	3,534.80	.97	3.61
Net profit over and above interest on investment at 6 per cent	—55.07	—.02	—.05
Number of times stock turned annually (approximate)	3.57		

[1] Equivalent to 5.999 per cent interest on investment.

Gross profits, operating expenses, and net profits showed the following range by years:

Item.	Per cent of sales.					
	1912		1913		1914	
	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.
Gross profit	19.78	35.13	16.98	25.73	17.19	27.10
Operating expenses	15.75	20.54	15.82	22.78	15.36	22.39
Net profits	2.90	18.07	0.88	6.25	0.63	8.82

The average investment at the yards studied in the two cities during the three-year period was divided as follows:

	Distribution (per cent).
Merchandise investment	36.82
Outstanding accounts	49.45
Real estate improvements	9.35
Personal property	4.38
Total	100.00

It will be noted that outstanding accounts constituted the major portion of the investment, 18 per cent greater than at the Chicago yards. The percentage of sales carried as outstanding accounts did not vary greatly from year to year, as shown below:

	Percentage of outstanding accounts to sales.
1912	29.49
1913	29.58
1914	30.22
Average	29.79

A similar method was used to obtain the rate of stock turnover in Minneapolis as in Chicago. It gave an average of 3.57 turns annually, or 1.23 more than the Chicago yards. The variation in 1912 was from 1.86 to 3.66 turns, with an average of 2.68. In 1913 the variation was from 2.57 to 4.48 turns, with an average of 3.52. In 1914 an increased volume of sales produced a considerably higher rate of stock turn, varying from 3.34 to 5.85, with a resulting high average of 4.57.

KANSAS CITY, MO.

Kansas City, from its geographical location in close proximity to the southern producing region, is the greatest lumber market of the lower Mississippi Valley.

With one yard to every 9,000 inhabitants, retail conditions in the city are evidently favorable to competition. Although Kansas City is not an open market to the same extent as Chicago, practically all wood-using industries purchase their supplies from manufacturers or wholesalers, and retailers seldom obtain such orders. The city has a surplus of retail lumber yards, and those whose records were compiled barely earned 6 per cent on their investments during the three-year period.

The operations studied in Kansas City are presented in Table 8, which is based on 24 annual operations of 8 different yards covering the period from 1912 to 1914, inclusive. The yards are considered representative of the retail trade in the city.

TABLE 8.—*Costs of retail lumber distribution as shown by 24 annual operations of 8 city yards in Kansas City, Mo., for the period 1912, 1913, and 1914.*

Account statement.	Average costs per yard in dollars, total business annual.	Average prorated costs per thousand feet b. m., lumber only.	Average expense expressed in per cent on sales, total business.
Total investment	$104,465.36		
Total net sales	135,906.81	$25.41	
Gross profit	30,221.17	5.65	22.24
Operating expenses:			
Salaries	4,608.81	.86	3.39
Labor and teaming	11,456.76	2.14	8.43
Insurance, taxes, and rent	2,445.82	.46	1.80
Loss accounts	510.05	.10	.38
Depreciation on equipment	1,065.92	.20	.78
Miscellaneous expenses	3,864.36	.72	2.84
Total operating expenses	23,951.72	4.48	17.62
Net operating profit	6,269.45	1.17	[1]4.62
Interest on investment at 6 per cent	6,267.92	1.17	4.62
Net profit over and above interest on investment	1.53		.001
Number of times stock turned annually (approximate)	3.74		

[1] Equivalent to 6.001 per cent on investment.

In the yards studied, the range by years in the gross profit, operating costs, and net profits shown was as follows:

Item.	Per cent of sales.					
	1912		1913		1914	
	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.
Gross profit	20.76	29.06	13.33	27.60	19.94	25.68
Operating expenses	14.54	23.71	14.35	27.47	15.47	25.41
Net profit	4.01	9.01	1.02	6.69	0.27	8.41

The average return on investment shown by the yards studied was 8.5 per cent in 1912, which was the best year of the period, 3.34 per cent in 1913, a year of falling prices, and 5.92 per cent in 1914. The average net return of the investment during the three-year period was 6 per cent.

The investment in Kansas City, based on an average of the yearly inventories, was distributed as follows:

	Distribution (per cent).
Merchandise investment	34.73
Outstanding accounts	42.84
Real estate and improvements	19.57
Personal property	2.86
Total	100.00

The rate of turnover shown by the different companies varied in 1912 from 1.47 to 3.78 times, with an average of 2.92 turns. In 1913, with a decrease in the amount of stock carried, the turnover varied from 1.33 to 4.41 turns, with an average of 2.89. In 1914 the rate slightly increased, varying from 1.76 to 4.37, with an average of 2.92. The three-year average shows an approximate yearly turnover of 2.91 times.

SUMMARY OF URBAN TRADE

Inasmuch as the same general classes of lumber are used in all cities for common construction, the conditions existing in the Chicago, Kansas City, and Minneapolis markets are considered more or less typical of retailing costs in the urban trade. The data for these three cities have, therefore, been brought together in Table 9, which is an average derived from Tables 6, 7, and 8. In this average the statement from each city has been given equal weight. The species used vary in the different markets, but the consumer pays approximately the same average price for his lumber. The grades consumed are similar, even though the species differ.

TABLE 9.—*Recapitulation of average costs of retail distribution as determined from 95 annual yard operations of city yards in Chicago, Kansas City, and Minneapolis during period 1912–1914, inclusive.*

Account statement.	Average costs per yard in dollars. Total business, annual.	Average prorated costs per thousand feet b. m., lumber only.	Average expense expressed in per cent of sales. Total business.
Total investment	$119,220.07	....	....
Net sales	187,845.79	$26.44	....
Gross profit	41,105.07	5.80	21.95
Operating expense:			
Salaries	8,309.94	1.18	4.46
Labor and teaming	15,070.23	2.06	7.80
Insurance, taxes, rent	3,759.95	.52	1.96
Loss accounts	590.52	.08	.31
Depreciation	1,416.31	.21	.79
Miscellaneous	3,972.24	.65	2.47
Total operating expense	33,119.09	4.70	17.69
Net operating profit	7,985.98	1.10	[1] 4.16
Interest on investment at 6 per cent	7,152.90	1.03	3.91
Net profit over and above investment at 6 per cent	833.08	.07	.25

[1] Equivalent to 6.69 per cent interest on investment.

Gross profits.—There is very little difference in the average gross profits shown. A comparison of the three-year averages follows:

Place.	Per cent of sales.	Per thousand feet.
Chicago, Ill	21.74	$5.90
Minneapolis, Minn	21.87	5.85
Kansas City, Mo	22.24	5.65
Average	21.95	5.80

It will be noted that the maximum fluctuation from the average was twenty-nine one hundredths of 1 per cent of the sales, or the equivalent of 15 cents per thousand feet. It is significant that the city having the highest percentage of gross profit has the lowest gross profit in dollars and cents. This is because of the lower average price per thousand feet received in Kansas City.

Operating expense.—The costs of merchandising lumber are practically identical in some cases and in others present a wide variation. This is due to local conditions within the market itself and the ability of the dealers in various cities to adjust their business to changing economic and competitive conditions. The actual costs of merchandising lumber, based on three-year averages, were:

Place.	Average volume of business.	Operating cost.	
		Per cent of sales.	Per thousand feet.
Chicago, Ill.	$329,830.61	17.43	$4.73
Minneapolis, Minn.	97,799.94	18.31	4.90
Kansas City, Mo.	135,906.81	17.62	4.48
Average	187,845.75	17.79	4.70

The maximum variation from the average cost was $0.42 per thousand feet. The highest cost was incurred by the yards in Minneapolis and St. Paul, where the volume of business transacted was the smallest. On the other hand, these dealers show an increasing volume from year to year. In 1913 the increase over the preceding year was 18.6 per cent. In 1914 it was 9.38 per cent over 1913, or 29.1 over 1912. At the same time operating costs increased. In Minneapolis dealers generally endeavor to maintain a $5 service charge, or gross margin, on their lumber, figuring that to sell on a smaller margin is to sell below cost.

From the statistics obtained, the average retail cost of merchandising lumber under the conditions prevailing by and large in Middle Western cities of the first class approximates $4.70 per thousand feet above the cost of the material on railroad cars.

Distribution of costs.—It will be of interest to note the distribution of the operating costs making up the three-year average in the various cities.

Average operating costs per thousand feet.

Item.	Chicago.	Minneapolis.	Kansas City.	Average.	Average per cent distribution.
Salaries	$1.23	$1.46	$0.86	$1.18	25.11
Labor and teaming	2.24	1.79	2.14	2.06	43.83
Insurance, taxes, and rent	.57	.53	.46	.52	11.06
Loss accounts	.08	.06	.10	.08	1.70
Depreciation on equipment	.19	.26	.20	.21	4.47
General	.42	.80	.72	.65	13.83
Total	4.73	4.90	4.48	4.70	100.00

Net profits.—Based on the three-year average, a comparison of the net profits realized gives the following:

Place.	Per cent of sales.	Per thousand feet.	Per cent on investment.
Chicago, Ill.	4.31	$1.17	7.31
Kansas City, Mo.	4.62	1.17	6.00
Minneapolis, Minn.	3.56	.95	5.99
Average	4.16	1.10	6.43

The surprising closeness with which average gross profits, operating costs, and net profits check at three widely separated centers strengthens the conclusion that the results obtained represent broad conditions prevailing in urban trade.

Annual stock turns.—It has been mentioned previously that the rate of stock turn is based on inventories at the end of the year, when dealers as a general rule have reduced stocks. The figures given, therefore, are possibly a trifle high. The three-year average was as follows:

	Turns.
Chicago, Ill.	2.34
Minneapolis, Minn.	3.57
Kansas City, Mo.	2.91
Average	2.94

It will be noted that Minneapolis shows the greatest number of stock turns a year. This market being the closest to its main producing region (northern pine), the stock investment is proportionately smaller and can be turned oftener than in cities more remote from producing territory. This is also borne out by Kansas City, which is closer to its producing region than Chicago. The latter point is the farthest removed of any from the sawmills, and shows the largest per cent of stock investment and the lowest rate of turnover.

Distribution of investment.—A comparison of the average investment in the three cities is shown below:

Comparative distribution of investment, in per cent.

Item.	Chicago.	Minneapolis.	Kansas City.	Average.
Merchandise	56.92	36.82	34.73	42.82
Outstanding accounts	31.88	49.45	42.84	41.39
Real estate and improvements	5.83	9.35	19.57	11.58
Personal property	5.37	4.38	2.86	4.21
Total	100.00	100.00	100.00	100.00

It will be noted that the investment in merchandise is greater at Chicago than at Kansas City and Minneapolis, the points close to the source of production. The percentage of real estate and improvements is lowest in Chicago, where the majority of the concerns from which data were collected occupy leased grounds. In Kansas City several of the sites occupied were too valuable for lumber yards, but were used as such until the property was sold.

The average percentage of outstanding accounts carried on the books by various retailers does not vary materially from year to year. It was noted that the outstanding accounts increase proportionately with sales; hence an increase or decrease in the volume of business will only affect the outstanding percentage slightly, although the total amount in dollars may vary greatly.

The percentage of outstanding accounts to sales for the three years was as follows for the various cities:

	Per cent.
Chicago	18.56
Kansas City	32.93
Minneapolis	29.79

The average shown for Kansas City is considered high on account of the inclusion of one concern carrying 50 per cent of its sales in outstanding accounts. The average of all yards at this point would, it is believed, fall between 24 and 30 per cent.

Drayage.—By reference to the distribution of costs given on page 24, it will be seen that the item of "Labor and teaming" constitutes over 40 per cent of the cost of retail distribution in the large cities. It has been pointed out that in the trade of 25 or 30 years ago a much larger proportion of the material was hauled away from the yards by customers, and that with the development of more intensive trade an increasing service has been demanded of the retailer. At the present time city dealers claim that from 65 to 75 per cent of their lumber sales must be delivered. A great deal of this business is in less than wagonloads, because of the small size of the purchase or the desire of the purchaser to have the lumber delivered in small amounts as needed in construction work.

The item of "Labor and teaming" includes both drayage costs and yard labor. It was not possible in every case to segregate the two items, but data obtained in all three cities indicate that the average drayage cost centers around $1 per thousand feet of lumber sold. This is approximately 20 per cent of the total retailing cost.

Table 10 was prepared by a retail lumber dealer in St. Louis and is presented here to indicate the item of drayage as a factor of expense under varying conditions as to size of load and hauling distance. The table is based on a $5 cost for team and man per 10-hour day, and a uniform charge for the loader at the yard of 25 cents:

TABLE 10.—*Cost of hauling lumber per thousand feet in the city of St. Louis.*

[Tabulated to show cost per thousand feet for full and part wagonloads on long or short hauls.]

Time.	Team.	Loader	Total cost.	Load, 2,500 feet.	Load, 2,000 feet.	Load, 1,500 feet.	Load, 1,000 feet.	Load, 500 feet.
1 hour	$0.50	$0.25	$0.75	$0.30	$0.37½	$0.50	$0.75	$1.50
2 hours	1.00	.25	1.25	.50	.62½	.83	1.25	2.50
3 hours	1.50	.25	1.75	.70	.87½	1.16	1.75	3.50
4 hours	2.00	.25	2.25	.90	1.12½	1.50	2.25	4.50
5 hours	2.50	.25	2.75	1.10	1.37½	1.83	2.75	5.50
6 hours	3.00	.25	3.25	1.30	1.62½	2.16	3.25	6.50
7 hours	3.50	.25	3.75	1.50	1.87½	2.50	3.75	7.50
8 hours	4.00	.25	4.25	1.70	2.12½	2.83	4.25	8.50
9 hours	4.50	.25	4.75	1.90	2.37½	3.16	4.75	9.50
10 hours	5.00	.25	5.25	2.10	2.62½	3.50	5.25	10.50

The dealer in this instance stated that the average haul in St. Louis requires about five hours, which, according to his table, would mean an average cost of $1.10 per thousand feet on full loads. On less than full loads and on longer hauls the cost increases rapidly. This table brings out the wide differences in cost per thousand feet between small-lot sales and large sales. As in all city retail trade, where free delivery is maintained by the individual companies, there is a great duplication of costs in the delivery of lumber. In most of the large cities retail yards are more or less concentrated, so that delivery teams from different companies commonly traverse the same routes with small loads, when the entire amount could be delivered by one team at one-half or even one-third the expense.

RURAL RETAIL TRADE.

LINE-YARD OPERATIONS.

GENERAL ORGANIZATION.

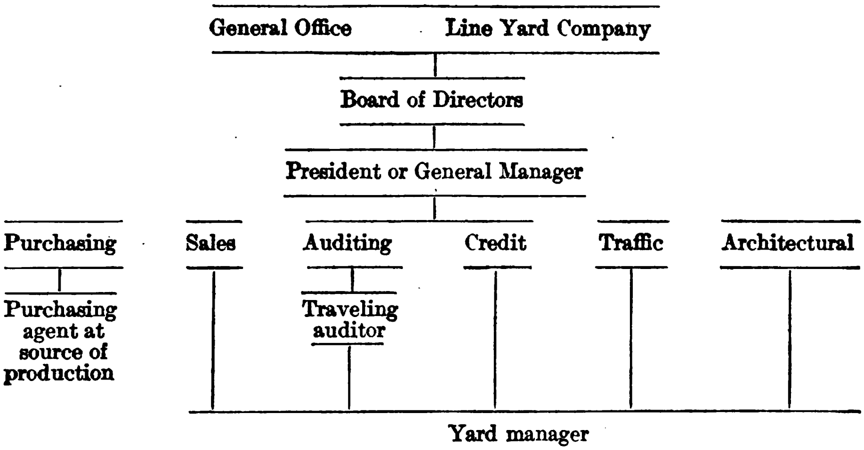
The parts of the Middle West outside of the large cities which were canvassed personally are predominantly line-yard territories in the States of Minnesota, North and South Dakota, Iowa, Nebraska, Kansas, Oklahoma, and Missouri. The proportion of line yards in parts of these States is as high as 85 per cent. In Oklahoma and North and South Dakota they form approximately 75 per cent of the total number. Retail-lumber distribution through these highly specialized line-yard concerns has been handled by territorial sections, each governed by the conditions within its own region.

The yards of Minnesota and North and South Dakota are considered as one unit, and the costs shown in that section represent those of an agricultural region stable in the east, but changing westward to the newer and less developed portions of the Dakotas. The yards in Iowa and eastern Nebraska from which data were obtained were grouped into another unit, representing a very stable, well-populated, and developed agricultural region with more intensive merchandising problems. The third unit comprises the yards in Oklahoma, Kansas, and Missouri, and represents line yard distribution in a well-populated region. Climatic conditions vary somewhat in these three regions which affect crop conditions and the general economic situation. This is a very important factor in the rural retail business and exerts a powerful influence upon the costs and profits of the dealer.

In rural trade, unlike city trade, delivery is not an important factor of cost, since relatively few country yards maintain delivery service. In towns of less than 1,000 population it was found that yards rarely deliver lumber, and it is not common in towns of less than 2,500 inhabitants. This expense, where incurred in the few larger towns, is covered in the item "Labor and teaming," which also includes cartage from car to yard and all yard labor except the salary of the manager. While the larger line yard companies often have several yards in the larger towns, 90 per cent or more of the yards studied were in towns of less than 2,500 population. These points serve primarily the country demand for lumber, and this is the trade upon which the line yards largely depend.

General offices of line yard concerns.—The more highly specialized line yard offices have purchasing, sales, auditing, credit, traffic, and architectural departments reporting directly to the general manager.

Organization of specialized line yard company.



The functions of these staff departments are as follows:

Purchasing department.—All purchases of lumber, cement, etc., are made through this department, either under long or short term contracts or emergency orders. The department keeps in close touch with the wholesale lumber market and seeks to anticipate fluctuations in price, thereby being in a position to take advantage not only of price movements but often of special conditions at the mills. The saving that may be effected by a margin of even 1 per cent in purchases is important in concerns having a yearly business of $1,000,000. The majority of the larger concerns believe that their savings in purchasing lumber and its products through well organized departments amount to 4 or 5 per cent. The advantage of purchasing millwork in carload lots and reshipping it to their yards on favorable local freight rates is another distinct gain, as millwork often comes to the smaller individual yards at a high freight rate.

Sales or retail department.—In line yard concerns having no mill connections the term "sales department" is used, but where such concerns are part of a manufacturing organization the term "retail department" is preferred to differentiate it from the general sales department.

The sales or retail department is vested with entire control of the retail business, directing its policy, prices, location of yards, etc., and is responsible for the net results. This department is closely allied with the purchasing department, the latter acting on its requisitions or advice. The sales department in turn instructs the auditing department to rebill the purchases to individual yards either at going market prices, a flat rate per car, a price which in their judgment an individual dealer would be obliged to pay, or an amount which will carry the pro rata expense of the general office. At the end of the year the cost of the general office is thus borne by rebilling charges and the gain from discounts. Local yards do not receive the benefit of cash payments, this amount being absorbed by the general office.

Rebilling charges on lumber ranged from $0.25 to $1.50 per thousand feet, assessed at a given rate per thousand feet or per car. The rebilling charges on shingles ranged from 15 to 25 cents per thousand. Lath was commonly rebilled at a 10-cent increase per thousand, and posts at one-half cent each. Coal usually carried a rebilling charge of 10 cents per ton or the difference between a single car price and the contract price obtained. These five commodities constitute the major sources of revenue for the general office. Millwork, hardware, tank and silo stock, building paper, cement, and plaster commonly carry a small rebilling charge. Most of the remaining commodities are rebilled at cost, although rebilling policies vary with the different companies.

Auditing or comptroller's department.—This department is responsible for the proper auditing of all records. Routine work at the office includes the checking of purchasing invoices and daily delivery tickets from the unit yards and keeping such records as purchase journals, outstanding accounts, and cash and sales ledgers. In addition traveling auditors and superintendents are maintained who are responsible for the accuracy of the records of a certain number of yards. The duties of the traveling representative are to check the records of each yard periodically and to reduce outstanding accounts by personal visits to debtors. In the semiannual and annual inventories the auditor must check the local manager's report. In some instances the traveling auditor actually directs the sales policy of the yards, regulates prices for the commodities sold, and serves in the general capacity of a superintendent.

Credit department.—This department is one of comparatively recent installation and is closely allied with the auditing department in that the field agents or traveling auditors perform its duties. The heavy burden of outstanding accounts has been amplified elsewhere as representing 30 per cent of the investment and 22 per cent of current sales, with a general upward trend. The development of highly specialized credit departments and credit systems has resulted. In some instances every person in the region, whether a customer or not, is listed, with his visible assets, his standing in the community, and the amount to which credit may reasonably be extended. This is a most intensive system but is said to have been worth the expenditure, as it has materially decreased outstanding accounts and largely eliminated losses from bad accounts. This advantage may be more definitely expressed by referring to the average costs of merchandizing where losses from bad accounts have averaged 10 cents per thousand feet. The decrease in investment accomplished by a proper credit organization is also apparent.

Traffic department.—The function of this department, briefly, is to route the material purchased over the lines having the most advantageous freight rates, to prevent errors in freight assessments by railroads, to trace cars and insure their delivery with dispatch, to file claims for loss and damage in transit, etc. This department is a most valuable adjunct of the business and its savings to the concerns are often great. These are brought about through expert ability in the collection of excess freight charges and claims for overweights, loss and damage in transit, misrouted cars, etc., in addition to all the routine services performed.

Architectural department.—This is the most recent department in line yard concerns and aims to advance the sale of building supplies by aiding builders to erect attractive homes and farm buildings and improvements. These departments handle advertising and the circulating of plans. They aim to create a demand for standard articles and sizes. Such a department is the most effective means of meeting mail-order competition.

The foregoing indicates the organization of the most highly specialized line yard concerns. In the less intensively organized companies and those which have not the volume of business for such specialization the duties of the central staff are less specific and credit and architectural departments are usually lacking.

LINE YARDS IN MINNESOTA, NORTH DAKOTA, AND SOUTH DAKOTA.

In this section cost records were obtained from 1,270 annual yard operations covering the period from 1912 to 1915, inclusive. The compiled averages are given in Table 11. The companies represented in this statement are among the strongest line yard concerns in the region, and the figures should reflect a high average efficiency in the rural distribution of lumber. The total volume of sales per yard shows a consistent increase in the section, and the statement for the period as a whole shows the trade to be on a good financial basis.

TABLE 11.—*Average costs of retail lumber distribution as shown by 1,270 annual yard operations of line yards in Minnesota, North Dakota, and South Dakota.*

[Basis: 1912, 9 companies, 338 yards; 1913, 9 companies, 356 yards; 1914, 9 companies, 374 yards; 1915, 5 companies, 202 yards.]

Account statement.	Average costs per yard in dollars, total business, annual.	Average prorated costs per thousand feet b. m., lumber only.	Average expense expressed in per cent of sales, total business.
Total investment	$22,397.37		
Net sales	29,065.22	$31.24	
Gross profit	6,745.63	7.25	23.21
Expense:			
Yard operating expense—			
Salaries	1,201.91	1.29	4.13
Labor and teaming	411.80	.44	1.42
Insurance, taxes, and rent	292.80	.32	1.01
Repairs and renewals	60.03	.06	.21
Loss accounts	83.81	.09	.29
Office supplies	21.54	.02	.07
Depreciation on equipment	292.92	.32	1.01
Miscellaneous expense	732.74	.79	2.52
Total yard operating expense	3,097.55	3.33	10.66
General office operating expense—			
Management salaries	147.11	.16	.51
Clerical salaries	217.34	.24	.75
Auditor's or superintendent's salary and traveling expense	280.64	.30	.96
Rent actually paid	50.63	.05	.17
Miscellaneous expenses	146.87	.16	.51
Total general office expense	842.59	.91	2.90
Total net operating expense	3,940.14	4.24	13.56
Net operating profit	2,805.49	3.01	[1] 9.65
Interest on investment at 6 per cent	1,343.84	1.44	4.62
Net profit, over and above interest on investment at 6 per cent	1,461.65	1.57	5.03
Number of times stock turned annually (approximate)	2.53		

[1] Equivalent to 12.53 per cent on investment.

Variations in gross profits, operating expenses, and net profits shown by the various companies covered the following extremes:

Item.	Per cent of sales.							
	1912		1913		1914		1915	
	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.
Gross profit	21.28	29.85	19.80	29.87	21.23	28.21	21.44	26.47
Operating expenses:								
Yard	9.08	14.04	8.83	12.30	8.83	15.10	8.93	11.93
General office	2.16	5.15	2.05	4.74	1.79	4.64	2.51	3.61
Net profit	7.61	12.52	6.07	13.10	4.65	11.28	8 31	11.53

It should be made clear that the variations noted apply to the average costs and returns shown by different companies and derived from the combined operations of their yards. Variations between different yards cover much wider extremes. During the course of the study yards were noted operating at a loss, while exceptional returns were as high as 35 per cent.

Subdividing the operating costs in various years affords the following comparison:

TABLE 12.—*Distribution of expense in thousand feet and per cent.*

	1912		1913		1914		1915		Average.	
	Per thousand feet.	Per cent.	Per thousand feet.	Per cent.	Per thousand feet.	Per cent.	Per thousand feet.	Per cent.	Per thousand feet.	Per cent.
Yard:										
Salaries	$1.34	31.38	$1.30	30.37	$1.32	29.86	$1.20	30.85	$1.29	30.42
Labor and teaming	.46	10.77	.44	10.28	.46	10.42	.41	10.54	.44	10.38
Insurance, taxes, and rent	.32	7.49	.32	7.47	.33	7.46	.28	7.20	.32	7.55
Repairs and renewals	.06	1.41	.07	1.64	.07	1.58	.06	1.54	.06	1.42
Loss accounts	.10	2.54	.07	1.64	.09	2.04	.09	2.31	.09	2.12
Office supplies	.02	.47	.02	.47	.03	.68	.02	.52	.02	.47
Depreciation on equipment	.35	8.20	.31	7.24	.30	6.79	.31	7.97	.32	7.55
Miscellaneous	.73	17.10	.82	19.16	.90	20.36	.65	16.71	.79	18.63
Total	3.38	79.16	3.35	78.27	3.50	79.19	3.02	77.64	3.33	78.54
General office:										
Managerial salaries	.18	3.98	.16	3.74	.14	3.17	.17	4.37	.16	3.77
Clerical	.23	5.15	.24	5.61	.25	5.65	.21	5.40	.24	5.66
Auditing salaries and expenses	.31	7.26	.31	7.24	.29	6.56	.30	7.71	.30	7.08
Rent	.06	1.41	.05	1.17	.05	1.17	.06	1.54	.05	1.18
Miscellaneous	.13	3.04	.17	3.97	.19	4.30	.13	3.34	.16	3.77
Total	.91	20.84	.93	21.73	.92	20.81	.87	22.36	.91	21.46
Total operating expenses	4.29	100.00	4.28	100.00	4.42	100.00	3.89	100.00	4.24	100.00

The average annual net profit realized, expressed as a percentage of the investment, is shown below:

	Per cent.
1912	13.10
1913	11.45
1914	11.98
1915	14.50
Average	12.53

The average yard investment in the 1,270 annual operations extending over a period of four years was $22,397.37, distributed as follows:

Item.	Value.	Per cent of total investment.
Merchandise investment	$8,824.18	39.40
Outstanding accounts	8,929.13	39.87
Real estate, improvements, and equipment	4,644.06	20.73
Total investment	22,397.37	100.00

The yards studied carried an exceptionally heavy burden in outstanding accounts, which averaged as follows for the different years:

	Per cent of sales.
1912	30.40
1913	31.39
1914	31.45
1915	29.03
Average	30.72

This average is 7.64 per cent greater than the outstanding accounts carried by dealers in Kansas, Oklahoma, and Missouri, possibly because Minnesota and the Dakotas are a one-crop country with an absence of diversified farming and farm receipts in different portions of the year.

The approximate of stock turnover was as follows:

Year.	Minimum rate.	Maximum rate.	Average rate.
1912	1.75	2.94	2.18
1913	1.80	4.05	2.64
1914	1.69	4.21	2.69
1915	2.29	3.89	2.81
Average	1.88	3.77	2.53

TABLE 13.—*Average costs of retail distribution shown by 173 annual operations in Iowa and Nebraska.*

[Basis: 1912, 3 companies, 34 yards; 1913, 3 companies, 34 yards; 1914, 4 companies, 83 yards; 1915, 2 companies, 22 yards.]

Item.	Average costs per yard in dollars, total business.	Average prorated costs per M feet b. m., lumber only.	Average costs expressed in per cent, total business.
Investment	$21,915.63	....	....
Sales	28,777.85	$31.29	....
Gross profit	6,593.99	7.17	22.91
Operating expense:			
Yard operating expense	3,093.87	3.36	10.75
General office expense	892.11	.97	3.10
Total operating expense	3,985.98	4.33	13.85
Net operating profit	2,608.01	2.84	[1] 9.06
Interest on investment, at 6 per cent	1,314.94	1.43	4.57
Net profit over and above interest on investment	1,293.07	1.41	4.49

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[1] Equivalent to 11.9 per cent interest on investment.

LINE YARDS IN IOWA AND NEBRASKA.

The number of annual operations from which the averages for this region are compiled are small in comparison with those to the north and south, and this fact should be considered in making any comparisons. The different items have therefore not been extended in as much detail as for the other groups, but final averages are given in Table 13.

In this section a number of the companies also handle grain on which the gross margin is very small, but this item was eliminated from the calculation. The yearly variations were as follows:

Year.	Average gross profit.		Average operating expense.		Average net profit.	
	Per cent of sales.	Per thousand feet.	Per cent of sales.	Per thousand feet.	Per cent on sales.	Per thousand feet.
1912	25.36	$7.97	12.79	$4.02	12.57	$3.95
1913	23.44	7.50	14.54	4.65	8.9	2.85
1914	21.40	6.75	13.81	4.35	7.59	2.40
1915	24.52	7.41	14.97	4.52	9.55	2.89
Average	22.91	7.17	13.85	4.33	9.06	2.84

It will be noted that the gross profits obtained were greatest in 1912 and 1915, years in which the merchandise appreciated in value over the inventory on account of increases in the wholesale price. In 1912 this appreciation was 78 cents per thousand feet. The gross profit actually obtained from sales was $7.19 per thousand feet, the equivalent of 22.86 per cent. The rest was due to appreciation in the value of stock. Similarly in 1915, a year during which the wholesale market strengthened materially, the gross profit averaged 24.52 per cent, or $7.41, whereas the actual margin on sales amounted to $7.37 per thousand feet. In 1913 and 1914, years of the lowest gross profit, the margins on sales exceeded the percentages given but were reduced by the depreciation in value shown by inventories. In 1914, for example, the gross profit actually obtained from sales was $7.68 per thousand feet, or 24.35 per cent; but when the average depreciation of 92 cents per thousand on inventory was covered, the margin was reduced to the lowest of the period, 21.4 per cent, or $6.75 per thousand feet.

For the 173 annual operations the average investment of $21,915.63 was distributed as follows:

Item.	Value.	Per cent of total investment.
Merchandise	$6,309.51	28.79
Outstanding accounts	7,409.67	33.81
Real estate, improvements, and equipment	8,196.45	37.40
Total investment	21,915.63	100.00

It will be noted that the percentage represented by real estate and improvements is considerably higher than in the Minnesota and Dakota region, owing to the fact that a greater proportion of the yards visited owned their property and were not on railroad rights of way as in the Northwest.

Outstanding accounts carried by the different companies varied from 12.2 per cent of the sales in rich agricultural regions to as high as 53.94 per cent in the one crop and grazing sections in the western portion of the territory. The average of the period for all yards was 24.54 per cent of the sales. The average rate of stock turn approximated 2.62 times.

LINE YARDS IN MISSOURI, OKLAHOMA, AND KANSAS.

The average costs of distribution at the yards studied in these States are shown in Table 14. The volume of sales per yard in this region shows an annual decrease during the three years for which data were obtained, while the entire statement shows less prosperous trade conditions than in the two regions already discussed. The costs of merchandising were the highest of all the sections studied and the net profits the lowest. Oklahoma is distinctly the line yard State of the group and 75 per cent of its yards are line organizations. Missouri has the least number of line yards of the three States, the proportion being approximately 40 per cent of line yards to 60 per cent of individual yards.

TABLE 14.—*Average costs of retail lumber distribution as shown by 1,000 annual yard operations of line yards in Missouri, Kansas, and Oklahoma.*

[Basis: 1912, 10 companies, 342 yards; 1913, 8 companies, 302 yards; 1914, 11 companies, 356 yards.]

Account statement.	Average costs per yard in dollars, total business, annual.	Average prorated costs per thousand feet b. m., lumber only	Average expense expressed in per cent of sales, total business.
Total investment	$20,610.59	....	....
Total net sales	21,852.81	$29.73	....
Gross profit	5,198.57	7.07	23.79
Operating expense:			
Yard—			
Salaries	944.84	1.29	4.32
Labor and teaming	703.13	.96	3.22
Insurance, taxes, and rent	360.08	.49	1.65
Repairs and renewals	36.42	.05	.17
Loss accounts	91.93	.13	.42
Office supplies	42.00	.06	.19
Depreciation on equipment	191.79	.26	.88
Miscellaneous	566.85	.76	2.59
Total yard expense	2,937.04	4.00	13.44
General office—			
Management salaries	214.41	.29	.98
Clerical salaries	190.55	.26	.87
Auditor's or superintendant's salary and traveling expense	105.85	.14	.48
Rent actually paid	53.40	.07	.24
Miscellaneous	165.31	.23	.76
Total general office expense	729.52	.99	3.33
Total operating expense	3,666.56	4.99	16.77
Net operating profit	1,532.01	2.08	[1] 7.02
Interest on investment at 6 per cent	1,236.64	1.68	5.66
Net profit over and above interest on investment at 6 per cent	295.37	.40	1.36
Number of times stock turned annually (approximate)	1.29	....	....

[1] Equivalent to 7.43 per cent on investment.

The yearly minimum and maximum values shown by the companies studied were as follows for gross profits, net operating expenses, and net operating profits:

Item.	Per cent of sales.					
	1912		1913		1914	
	Lowest.	Highest.	Lowest.	Highest.	Lowest.	Highest.
Gross profit	20.14	31.58	19.00	27.31	18.18	30.97
Operating expenses	12.84	19.20	15.34	19.49	14.66	22.53
Net profit	[1] 2.23	15.20	.41	9.14	1.43	15.41

[1] Loss.

In the three-year period covered the average net profit was 7.02 per cent on sales, or $2.08 per thousand feet.

These figures represent a net gain for the three-year period of 7.43 per cent on the investment. The variation in earnings (per cent of investment) during the years studied was as follows:

	Per cent.
1912	10.07
1913	5.00
1914	6.96

The average yard investment in this section was $20,610.59, distributed as follows:

Item.	Value.	Per cent of total investment.
Merchandise	$9,023.75	43.78
Outstanding accounts	5,043.63	24.47
Real estate, personal property, and improvements	6,543.21	31.75
Total investment	20,610.59	100.00

The outstanding accounts were 24.47 per cent of the investment, equivalent to 23.08 per cent of the sales. Outstanding accounts in this region varied from year to year, as follows:

Item.	Per cent of sales.		
	1912	1913	1914
Minimum	19.55	17.42	18.13
Maximum	28.23	24.96	30.27
Average	25.34	20.78	22.66

The average turnover shown by different companies in this region varied from 1.29 times to 3.08 times a year.

SUMMARY OF LINE-YARD TRADE.

In Table 15 the data from the three regional groups of line yards have been averaged. This is not a mathematical average since each section has been given equal weight instead of being proportioned to the volume of business represented.

TABLE 15.—*Recapitulation of average costs of retail lumber distribution as determined from 2,443 annual yard operations of line yards in Minnesota, North and South Dakota, Iowa, Nebraska, Kansas, Missouri, and Oklahoma during the period 1912–1915, inclusive.*

Account statement.	Average costs per yard in dollars, total business, annual.	Average prorated costs per thousand feet board measure lumber only.	Average expense expressed in per cent of sales, total business.
Investment	$21,641.20	....	....
Net sales	26,565.29	$30.75	....
Gross profit	6,179.40	7.16	$23.26
Operating expense:			
Yard operating—			
Salaries	1,112.39	1.30	4.19
Labor and teaming	551.71	.65	2.08
Insurance, taxes, and rent	329.36	.38	1.24
Repairs and renewals	50.76	.06	.20
Loss accounts	89.37	.10	.33
Office supplies	31.24	.04	.12
Depreciation on equipment	253.89	.30	.95
Miscellaneous expense	673.86	.79	2.53
Total yard expense	3,092.54	3.62	11.64
General office expense—			
Management salaries	136.74	.16	.52
Clerical salaries	211.83	.25	.80
Auditor's or superintendent's salary and traveling expense	209.90	.24	.79
Rent actually paid	53.48	.06	.20
Miscellaneous expense	159.74	.19	.60
Total general office expense	771.69	.90	2.91
Total operating expense	3,864.23	4.52	14.55
Net operating profit	2,315.17	2.64	[1] 8.71
Interest on investment at 6 per cent	1,298.47	1.50	4.89
Net profit over and above interest on investment at 6 per cent	1,016.70	1.14	3.82

[1] Equivalent to 10.71 per cent net gain on investment.

NOTE.—This table is based on the average yards as determined for the three regions (1) Minnesota, North and South Dakota; (2) Iowa and Nebraska; and (3) Kansas, Oklahoma, and Missouri. Each region was given equal weight in the averages shown above.

From this table it will be noted that the average investment shown for rural or country town yards operated by line yard companies is $21,641.20, with average yearly sales of $26,565.29. The average gross margin is $6,179.40, or 23.26 per cent of the net sales. On a pro rata basis, this is equivalent to a gross margin on lumber of $7.16 per thousand feet. The average operating cost shown is $3,864.23 per yard, or 14½ per cent of the sales, with a net operating profit of $2,315.17 per yard, or 8.7 per cent of the sales. This is equivalent, to an average net return on the investment of 10.7 per cent. Applied to lumber on a proportional basis these figures amount to an operating expense of $4.50 per thousand feet, and a net profit of $2.65 per thousand feet. Of the operating expense of $4.50 per thousand feet, $3.55 is incurred at the yard and 95 cents at the general office.

A comparison of the essential factors of cost in the three regions is given below:

TABLE 16—*Average factors of cost in three regional groups of line yards.*

Item.	Average per yard, in dollars.		
	Minnesota, South Dakota, North Dakota.	Iowa, Nebraska.	Missouri, Oklahoma, Kansas.
Investment	$22,397.37	$21,915.63	$20,610.59
Net sales	29,065.22	28,777.85	21,852.81
Gross profit	6,745.63	6,593.99	5,198.57
Operating expense:			
Yard operations	3,097.55	3,093.87	2,937.04
General office	842.59	892.11	729.52
Total	3,940.14	3,985.98	3,666.56
Net operating profit	2,805.49	2,608.01	1,532.01
Interest on investment . . . per cent	12.53	11.9	7.43

Item.	Average per thousand feet and per cent of sales.					
	Minnesota and Dakotas.		Iowa and Nebraska.		Missouri, Oklahoma, and Kansas.	
	Per thousand.	Per cent.	Per thousand.	Per cent.	Per thousand.	Per cent.
Net sales	$31.24		$31.29		$29.73	
Gross profit	7.25	23.21	7.17	22.91	7.07	23.79
Operating expense:						
Yard operations	3.33	10.66	3.36	10.75	4.00	13.44
General office	.91	2.90	.97	3.10	.99	3.33
Total	4.24	13.56	4.33	13.85	4.99	16.77
Net operating profit	3.01	9.65	2.84	9.06	2.08	7.02

Distribution of average investment.

Item.	Average value.	Per cent distribution.	Per cent of sales.
Merchandise	$8,052.48	37.21	30.31
Outstanding accounts	7,127.48	32.93	26.83
Real estate, improvements, and equipment	6,461.24	29.86	24.32
Total	21,641.20	100.00	81.46

It will be noted that the average operating cost per yard is very similar in each section. This fact reflects further the effect of volume of business upon costs reduced to a thousand-foot or percentage basis.

INDIVIDUAL YARDS.

The distinction between individual yards and line yards has been made clear. Sufficient time for an extensive personal examination of the cost records of individual dealers in small towns was not available and the figures given below are based upon reports received by mail. The cost records submitted in a large number of cases were not complete or comparable, consequently only those were used which were more complete and clear as to the manner in which costs were figured. Reports from 88 different yards were used, and their costs based on the business transacted during 1914.

Seventy per cent of the yards were in towns having a population of less than 3,000, and 50 per cent of the yards were located in the States of Indiana, Illinois, and Wisconsin, where the individual yard is predominant in point of numbers. The remainder were scattered throughout Missouri, Kansas, Oklahoma, Iowa, Nebraska, Minnesota, and the Dakotas. Locations were included at 8 towns having a population in excess of 25,000, the largest being 90,000. It will be apparent, therefore, that the average volume of trade of these 88 independent dealers, $46,654 per yard, exceeds the average for yards in towns of less than 2,500 inhabitants.

While the individual dealers in large towns are ordinarily close buyers, those in the smaller and more remote towns who can not keep in close touch with mill and market prices do not, as a rule, buy to as great advantage as the line yards, whose stock is purchased in large quantities by expert buyers thoroughly familiar with market conditions. Furthermore, line yards effect every possible economy in discounting bills, obtaining low insurance rates, close adjustment of claims, etc., for which they have a strong and efficient organization. The line yards, as a rule, by buying in large amounts, escape the customary extra charge of 50 cents per thousand feet for mixed cars.

On the other hand, the individual dealer in a small town does not carry the overhead expense of a general office, which, it has been shown, amounts to approximately 3 per cent of the sales, or 90 cents per thousand feet on the lumber handled. Whether or not econmies effected by the general office of a line of yards more than offset its cost of maintenance and the salaries of its executives, it is impossible to say. All conditions being equal, there appears to be no reason why the individual dealer who allows himself a salary comparable to that of a line-yard manager can not operate as cheaply or even more cheaply if the same ability is applied to his business.

As between the two types of organization, the indefinite personal factor is in favor of the individual dealer. This is generally admitted by line yard men and is evidenced by the policy followed by some companies of giving their local manager part interest in the yard. The direct effect of this factor upon costs lies in the interest and attention given the yard business and the increased volume of trade which the independent business man is often able to obtain over the man hired by an outside corporation. The extent to which this advantage is utilized, of course, depends upon the personality and business ability of the individual dealer.

Gross profit.—The gross profit shown by the returns from 88 individual yards ranged from a minimum of 12 per cent to a maximum of 40 per cent of the sales. The returns from over 60 per cent of the total number of yards, however, fell between 18 and 25 per cent. The average based on the total volume of business was 20.17 per cent of the sales. Considering the great variations in the types of yards included, however, this average should not be given great weight.

Operating costs.—The total operating expenses reported centered between 12 and 15 per cent, the average volume of business amounting to $47,177. A great range in the annual volume of business transacted per yard was shown, the minimum being $11,000 and the maximum $184,000.

Net profit.—Great variation was shown likewise in the net profit realized by the various yards, ranging from a loss to a gain of 16 per cent—in one case to a gain of 25 per cent of the volume of sales. The average for the 88 companies was 7.31 per cent of the sales, which was equivalent to a net return on the reported investment of 7.46 per cent.

FARMERS' STOCK COMPANIES.

Stock companies engaged in the retail distribution of lumber in the Middle West are restricted uniformly to the country districts. These companies are commonly called "Farmers' cooperative companies," whether operated on a strictly cooperative basis or as a straight stock company in which profits are distributed according to the stock held. Both types of companies were studied. It was found that with few exceptions their stated objects are similar, in that they endeavor to operate on a low margin which will yield a fair return on the capital invested and a small surplus to cover the hazards of the business. These companies, particularly the strictly cooperative organizations, sell for the farmer as well as to him, endeavoring to obtain better prices for the farmer's products and lower prices for the merchandise which he consumes. Grain is the largest single product marketed for the farmer.

Approximately 10 per cent of the farmers' companies in the Middle West handle lumber. In most cases it is carried as part of the general stock and forms a relatively small percentage of the total business conducted, although some companies restrict themselves to a lumber and building supply business and were, in fact, organized for that purpose. During the past 10 years there has been a phenomenal increase in certain regions of the Middle West in the number of farmers' cooperative companies which retail lumber. From inquiries sent to over 3,000 companies it appears that the number in 1915 was over five times that in 1910. This, however, does not take into consideration the failures since 1910, which it was impossible to determine.

The return which these companies seek on the capital invested varies, but commonly ranges from 6 to 10 per cent. The results actually obtained in business practice likewise are subject to wide variations, depending upon the ability and personality of the manager employed, the support given the company by local farmers, the ability of the members to keep the organization on a strictly cooperative basis, and the intensity of the competition which the company encounters. As a rule, the benefits of the low prices at which these companies sell are shared by the community, since few of them restrict their sales to their own members. The total membership of these companies in the Middle West, based on figures obtained from secretaries of various State cooperative associations, is approximately 400,000. In Iowa, the center of the movement, the average membership per company is 135; in the other States it ranges from 80 to 120. Individual companies range from as low as 11 to over 300 members.

The data obtained on the financial operations of the farmers' companies handling lumber were limited, due to the fact that very few of the companies visited kept their accounts in a condensed and systematic manner whereby their operation could be clearly analyzed without prolonged investigation. The figures presented are not based on a sufficient number of companies to warrant a general average or to be regarded as conclusive. They are given merely as indicative of the costs of distributing lumber through these organizations.

Gross profits.—The average volume of business transacted by the farmers' companies which were studied was found to be considerably larger than at regular retail lumber yards in the country districts. This was true of the companies which did not handle grain as well as of those which did. Where grain was handled, the annual volume of business was uniformly high, and the low gross margin on which it was conducted caused the profit on lumber or any other class of merchandise to lose its identity in the records. Lumber in some cases formed less than 15 per cent of the total sales, and the average gross profit showed a margin of less than the cost of handling lumber alone. The figures must, therefore, be considered for the business as a whole and not as applicable to lumber or any other one commodity.

For the companies studied which are not engaged in handling grain the average gross profit on the yearly business centered between 12 and 15 per cent of the sales, which averaged $52,000 per company in 1914. This volume of business was low compared with that of companies handling grain. These made a gross profit ranging from 3.16 to 10.89 per cent in 1914 on a business averaging $206,000. As already noted, lumber formed a relatively small portion of their sales.

In the selling of lumber it was found that on wagon trade a gross margin of 15 or 20 per cent above cost in the yard was aimed at, while on bill sales and estimates a gross margin ranging from 10 to 15 per cent was figured. Several companies were found which if necessary sold estimates on a margin as low as 5 per cent. The result was that lumber sales were often made at a price less than the cost of the material plus the actual operating costs equitably borne by lumber, losses being covered by profits from grain or other commodities which were not handled on so close a margin. One weakness noted in the farmers' companies was a failure to maintain standard or modern accounting systems whereby gross margins on the different classes of merchandise or even upon the business as a whole could be established.

Operating costs.—The farmers' cooperative yard in point of investment and current costs is comparable with an individual or line yard excepting where grain is handled, in which case the investment is increased by the cost of the elevator and handling the grain business. The actual cost of selling and handling lumber through a farmers' cooperative yard is no greater or less than through an individual or line yard comparable in efficiency and volume of business. With equal efficiency the cheaper costs per thousand feet will lie with the company having the greatest volume of lumber sales.

To say that the average volume of lumber sales by farmers' yards is greater or less than the average volume handled by individual or line yards is not warranted by the data at hand. Furthermore, such a comparison would not be conclusive as to the possibilities of cheaper merchandising. The volume of trade is dependent primarily upon local conditions as to competition and demand for lumber and not upon the type of organization, although the latter may influence the degree of competition. In actual practice in the country trade the volume consideration applies to the total sales of all merchandise, since the greater the sales the less the fixed charge against each dollar of merchandise handled. The cooperative companies handling grain benefit from the increased volume of business carried by their investments and are able to handle lumber and side lines at a less fixed charge per dollar of value. The same result has been obtained by regular lumber dealers. One dealer increased his gross profits in 1915 $8,000 by adding grain to his business. The principal difficulty, however, in combining the two classes of business has been inability to obtain managers who are proficient in both grain and lumber merchandising.

The handling of grain does not increase the investment in proportion to the increase in the volume of sales. For example, the average investment of six cooperative companies handling grain was approximately $45,000. With yearly sales averaging $200,000 per company, this was only 23 per cent of the sales. In the case of the line yards given in Table 15, the investment is 87 per cent of the annual sales. The average operating costs per yard were approximately $6,500, as against $3,864 for the line yards. The direct effect of the grain sales, therefore, is to increase the volume of business with a relative reduction in operating expenses.

The operating expenses of these companies ranged from 2 to 6 per cent of their sales. The lowest volume of sales shown by any one company was $113,400 and the highest was $291,366. Owing to the low cost of handling grain, it would be manifestly wrong to assume that a lumber business could be operated on a margin approaching the above percentages. In the case of cooperative companies or farmers' stock companies handling lumber and building supplies exclusively, the operating expense centered around 10 per cent of the sales, which average $52,315 per company, although data were not obtained from a sufficient number of such companies to make this figure reliable.

Net profit.—The net profit shown by the companies studied was subject to great variation. In the case of companies which did not handle grain, the net gain on the investment was with one exception less than 6 per cent. The range was from 2.8 per cent to 5.3 per cent, with one company showing a return of 6.8 per cent. The average investment of these companies was approximately $34,000.

Considerably higher profits were shown by the companies handling grain in addition to lumber and other products. For these companies, the return on the investment ranged from 5.7 per cent to 15.1 per cent, the majority centering around 10 per cent. Two of the companies showed a higher rate of gain than organizations of their type ordinarily figure upon.

VOLUME OF BUSINESS AS A COST FACTOR.

The volume of lumber and other merchandise which a retail yard handles monthly or yearly is an important factor in operating cost. This is due to the fixed charges incident to the business, which must be met regardless of the amount of lumber sold. Consequently the smaller the volume of sales, either in dollars or quantity, the higher the cost of selling per dollar or per thousand feet. These fixed charges are determined within broad limits by the type of the business. The data collected show that on the average the total cost of operating country yards throughout the Middle West varied but little as between the three sections, but that the average volume of business transacted directly affected the unit cost of merchandising. In other words, broad conditions were quite similar and the average fixed charge did not vary greatly.

In order to ascertain the approximate relation between costs, expressed in percentage of sales and per thousand feet, and the volume of business transacted, the operating costs shown by single yards and groups of yards were platted on a cross-section sheet in relation to their volume of business, and a curve drawn to represent an average of the points thus established. This curve is shown in figure 1. It is based on averages derived from the actual operations of line yards throughout the Middle West, and represents the average costs shown by a great number of yards. Single yard costs naturally vary greatly from these average figures, although the majority follow the line of the curve quite closely. This diagram brings out graphically the effect of the volume of business upon the cost of retail lumber distribution in the rural trade, where fixed charges are broadly similar and in which over 50 per cent of the lumber sold at retail is consumed.

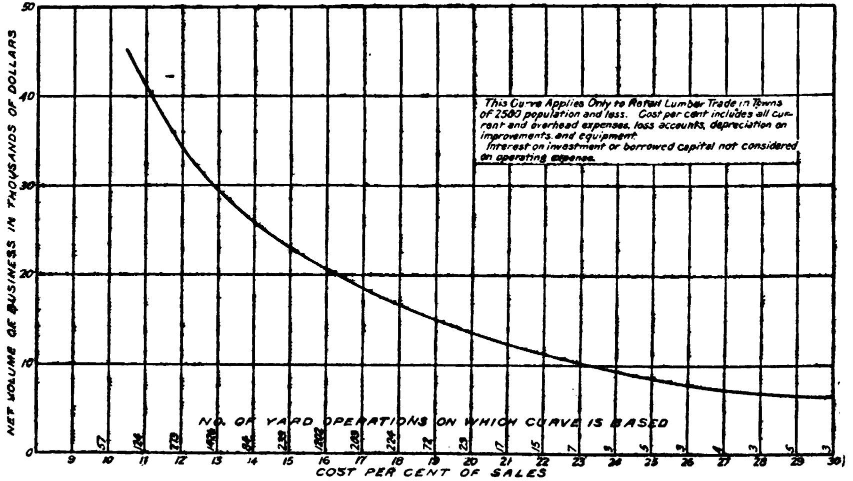

FIG. 1.—Average cost of doing retail lumber business in per cent of sales in relation to annual volume of business transacted. Averages compiled from actual operation of line yards in the Middle West.

The average operating cost expressed as a percentage of the sales is directly indicated by the intersection of the curve and the vertical and horizontal lines representing the volume of sales and the cost per cent respectively. With sales of $40,000 annually the curve indicates an operating expense of between 11 and 12 per cent, but as the volume of sales decreases operating costs increase. The curve indicates that when sales total $10,000 or less operating costs exceed 23 per cent.

The same relation may be worked out readily by using an average selling price and applying the values shown by figure 24. This has been done in Table 17, in which an average selling price of $30.75 per thousand feet, determined from the operations on which the curve is based, has been used.

TABLE 17.—*Operating costs.*

Total sales.	Cost of merchandising.		Total sales.	Cost of merchandising.	
	Per cent of sales.	Per thousand feet of lumber.		Per cent of sales.	Per thousand feet of lumber.
$41,400	11	$3.38	$12,300	21	$6.46
34,400	12	3.69	11,200	22	6.77
29,500	13	4.00	10,200	23	7.07
26,000	14	4.31	9,500	24	7.38
23,000	15	4.61	8,700	25	7.69
20,800	16	4.92	7,900	26	8.00
18,700	17	5.23	7;300	27	8.30
16,800	18	5.54	7,000	28	8.61
15,200	19	5.84	6,600	29	8.92
13,700	20	6.15	6,400	30	9.23

The volumes of trade shown by city and country yards are not comparable, since the average values throughout are different. The average city yard handles many times the volume of the average country yard, but at a greater cost due to the added service rendered and the proportionally greater charge for labor, real estate, taxes, insurance, etc. Nevertheless, volume is an equally important factor in city yards. In figure 2 the relation of volume of trade to operating costs for a period of years is shown for a large city yard. It will be noted that since 1910 the volume of sales has fallen off practically 50 per cent, while the total operating expenses have been reduced only 43 per cent. This figure also shows graphically the gradual increase in distributing costs since 1902. The effect of volume of trade on the average monthly operating costs is much more marked than in the case of the average costs of the year's business.

The effect of volume of business upon operating costs per unit of merchandise sold appears to be more marked in the case of country than city yards. This is due primarily to the fact that more handling of lumber is necessary at city yards, where one of the most important items of cost is labor and teaming.

A large percentage of the country yards, furthermore, are one-man enterprises and their expenses are reduced to the minimum at which a yard may be operated. In the city yards an increased volume of business means additional outlays for labor and teaming, which may not be incurred at country yards, where comparatively little lumber is delivered and where an increased volume of trade up to a given point can be handled with slight or no increase in the yard force.

This problem of securing a sufficient volume of sales makes it necessary for the retail lumber dealer in the smaller towns to carry a large variety of building materials. A majority of them believe that they could not conduct a profitable business in lumber products alone; a sufficient volume of trade is not available.

The average annual sales per yard in rural trade, shown in Table 15, amount to $26,565, of which approximately 55 per cent, or $15,000, is of lumber and lumber products. Using the average selling price of $30.75, this is equivalent to approximately 488,000 feet. The

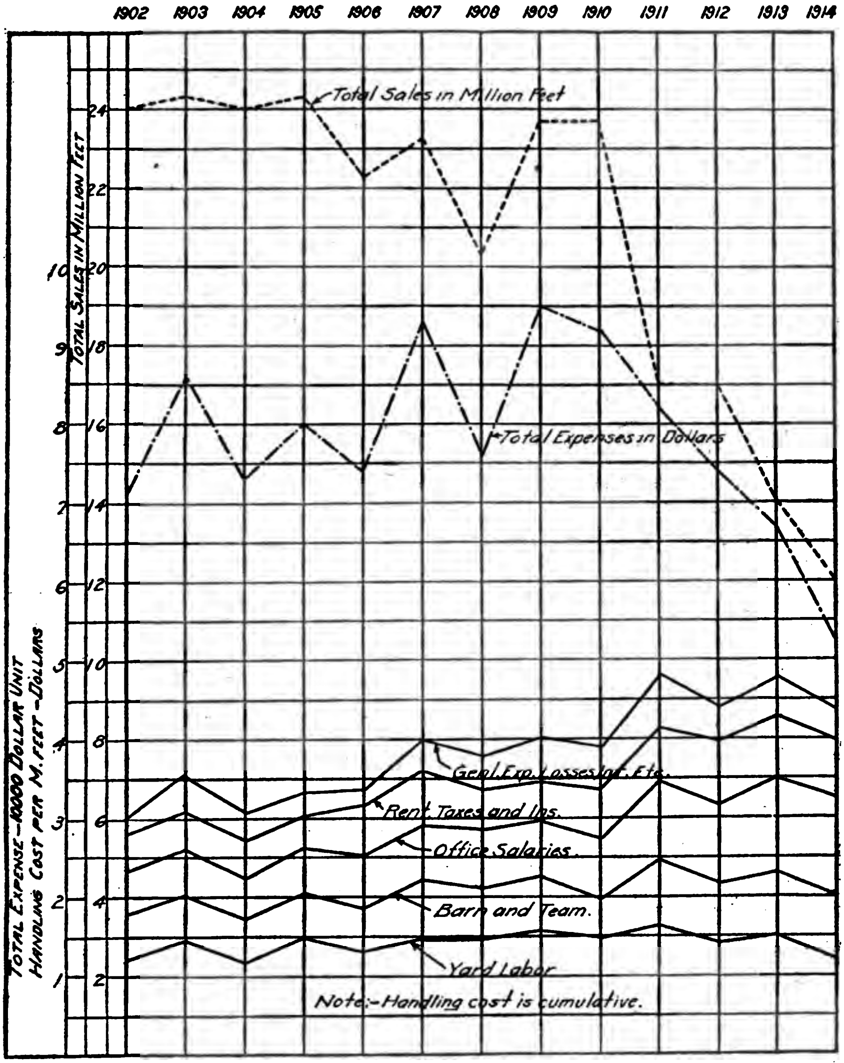

FIG. 2.—Division of expense per thousand feet. Total expense and total sales of a large city yard for a period of 12 years.

average operating expense per yard amounts to $3,864 and the investment to $21,641. If the average yard attempted to handle lumber and lumber products only, its operating expenses could be reduced but slightly. If the average operating expense could be reduced to $3,500 and the average investment to $15,000 by decreasing the stock and outstanding accounts, the comparison would stand approximately as follows:

Item.	Lumber exclusively.	Lumber and side lines, based on Table 12.
Investment	$15,000.00	$21,641.00
Interest, at 6 per cent	900.00	1,298.46
Operating expenses	3,500.00	3,864.23
Margin required to earn 6 per cent on investment	4,400.00	5,162.69
Sales in feet, 488,000.		
Margin required per 1,000 feet:		
Operating	7.18	4.47
Profit	1.84	1.50
Total gross margin required per 1,000 feet	9.02	5.97

This comparison is necessarily approximate but is believed to be a conservative illustration. From a merchandising standpoint the significant feature is that to retail lumber exclusively in country districts the average dealer would have to operate on a gross margin approximately $3 per thousand feet higher than at present in order to realize 6 per cent on his investment unless his yearly sales of lumber could be materially increased. This higher margin would necessarily have to be obtained by a corresponding increase in the selling price of lumber.

The effect of the number of yards at a distributing point upon operating costs and the prices which the dealers must charge for lumber in order to make fair returns is suggested by this discussion. This is a large and complicated question, involving the economy of competition on one hand and its individual and public benefits on the other. The subject can only be touched upon briefly, by pointing out the existing situation in retail lumber distribution in the region covered. That there are more retail lumber yards than necessary to serve the public and yet maintain competitive trade there can be little doubt. That a less number of yards could handle the business more cheaply by transacting a larger average volume likewise seems clear.

These statements, however, necessarily need amplifying. At many points there is only a reasonable number of yards and a fair volume of business is available. On the other hand, there is a larger number of points at which there are more yards than are necessary or justified by the demand to be supplied. This is true of cities as well as towns and villages. Replies from 608 dealers throughout the 11 States showed that an average of over 40 per cent more business could be transacted with their present investments if it were available. Accepting these estimates as fair, retail plants, considered broadly, are operating at only a little more than 50 per cent of their capacity.

Table 4 shows that the Middle West has a retail yard for every 2,185 inhabitants. This figure merely indicates the situation in a broad way. In country towns of 2,500 population and less there is a yard for every 1,470 inhabitants. At larger points the ratio of population to yards increases until in cities of over 100,000 it stands at one yard to every 13,912 people. In order to exist, city yards must handle a much larger volume than country yards; hence the different classes of trade are not directly comparable. For each city or distributing point there is a given volume of potential business, and the larger the number of yards the smaller the average volume of business per yard. The result is a greater charge against each dollar's worth of business. Throughout the country districts there are many small points at which there are two or more yards where one yard could handle the business just as satisfactorily and at a lower cost per unit of merchandise. For example, in North and South Dakota there are approximately 225 towns of a population of 500 or less which have two or more lumber yards. In Oklahoma approximately 33 per cent of the points at which retail yards are located are towns of 2,500 or less which have two or more yards.

It is safe to say that the great majority of these points do not supply more business than could be handled by one yard, and that at a reduced cost. Similar conditions prevail in many large cities, and statistics indicate that the situation is becoming more intense. The number of yards generally has been on the increase, while the per capita consumption of lumber has been on the decrease. Many examples of this general situation might be cited. The one given below is not extreme, since the volume of sales and the financial showing conform closely with the averages for country trade given in Table 15. A town of 1,300 population in Nebraska has two lumber yards. The combined business transacted in 1914 was $57,109. 74, an average of $28,554.87 per yard. The average merchandising cost was approximately $5 per thousand feet of lumber, while the average net gain on the combined investment of $58,867 was 6.49 per cent.

The average cost of merchandising by a country yard having an annual trade of $57,000 approximates 10 per cent. Theoretically, therefore, the business at this point could have been handled by one yard at a cost of approximately $3 per thousand feet instead of $5. The saving could have been given to the consumer, the dealer at the same time increasing his net gain to approximately 10 per cent by reducing the investment. By handling the entire business through one yard instead of two, it has been estimated that the aggregate investment could be reduced approximately one-third. At the same time, it must of course be recognized that real competition is necessary to protect the consumer from overcharges.

Many cases much more extreme than the one cited were noted, and the situation is common in a greater or less degree throughout the region. From the dealer's standpoint, the tendency to split up the trade among too many yards is undoubtedly one of the greatest hazards of the business. Competition among local dealers and from outside sources may restrict both the point to which prices may be advanced and the volume of trade which may be secured. Thus the sudden establishment of a new yard may wipe out or seriously reduce the profits of an established dealer or lead to a sharp competitive struggle with its accompanying losses.

Unrestrained competition would tend to reduce the number of retail distributors where it is excessive for the trade to be supplied; and the continuance of a large number of yards dividing a comparatively small volume of business between them may indicate local restrictions upon competition in one form or another.

CREDITS.

The problem of credit is regarded by many retail lumbermen as equal in importance to that of volume. The lumber business throughout the region studied is transacted largely upon a credit basis. Dealers conducting a strictly cash business were noted only in rare instances. An idea of the burden carried by the trade in the form of outstanding accounts is gained from Table 4, which combines data for the year 1914 from the entire region and from all classes of retail dealers. The amount of credit carried on the books of the average yard at the close of 1914 was $10,404. Applying this average to the total number of yards in the region, the sum carried by the trade was approximately $114,121,476, or 26.35 per cent of the sales made during the year. Interest on this amount at 6 per cent is equivalent to $6,847,288.

It is believed the average figures given on outstanding accounts in the statements presented are conservative in view of the fact that they are based on the dealers' books at the close of the year, after special efforts had been made to secure settlements prior to beginning the new year's business. From Table 4, the percentage of outstanding accounts to the annual sales and investment of the average yard in towns and cities of different size is as follows:

Yards at points with a population of—	Percentage of outstanding accounts to—	
	Total annual sales.	Total investment.
Less than 2,500	29.17	34.04
2,500 to 10,000	31.61	35.94
10,000 to 25,000	23.71	29.71
25,000 to 100,000	26.78	31.72
Over 100,000	23.69	31.70
Average	26.35	33.03

The percentage of outstanding accounts to total sales shown by the line yard and city yard statements check the above figures with surprising closeness. In the 2,445 annual line yard operations, covering a period of four years, the average outstanding accounts were 26.83 per cent of the total sales, while at the city yards studied in Chicago, Kansas City, and Minneapolis, outstanding accounts formed 27.09 per cent of the total sales. Accepting these figures as approximately correct, the dealers carry from 25 to 30 per cent of their sales for an average period of one year. Using average lumber selling prices of $30.75 per thousand feet for country trade and $26.44 per thousand feet for city trade, the interest charges incident to carrying credits may be expressed as follows per thousand feet of lumber:

Item.	Country trade.	City trade.
Average selling price of lumber per thousand feet	$30.75	$26.44
Percentage carried on books for average period of one year	26.83	27.09
Equivalent value in dollars	$8.25	$7.15
Interest at 6 per cent	$0.495	$0.429

In other words, for every thousand feet of lumber sold in the country trade the interest charges resulting from the extenson of credit amount, at 6 per cent, to approximately 50 cents, and in the city trade to approximately 43 cents.

The data obtained indicate that a relatively small proportion of the transactions in the retail lumber business by and large are cash sales. For example, it was ascertained from the records of 14 yards in one of the prairie States that for a period of three years only 13 per cent of the sales were cash transactions, credit being granted in the remaining cases. Replies from 418 dealers distributed throughout the entire region showed an average of 16.1 per cent of cash sales. During the course of the study accounts were noted which had been carried as long as six years, although it is the common practice for dealers to charge off small accounts on which hope of collection seems futile after a period of two years. The greatest proportion of the accounts carried are, of course, incurred during the current year's business. The statement given in Table 18, which is based upon the records ofover 65 yards in the country trade, gives an idea of the length of time accounts are carried:

TABLE 18.—*Average of accounts carried for years 1912, 1913, and 1914.*

Item.	Average per yard.	Per cent distribution.
1912.		
Accounts outstanding, close of business 1912	$3,899.43	100
Amount carried forward from 1910 and prior	455.89	11.69
Amount carried forward from 1911	268.69	6.89
Amount incurred during 1912	3,174.85	81.42
1913.		
Accounts outstanding, close of business 1913	3,461.50	100
Amount carried forward from 1911 and prior	555.53	16.05
Amount carried forward from 1912	245.71	7.10
Amount incurred during 1913	2,660.26	76.85
1914.		
Accounts outstanding, close of business 1914	3,380.56	100
Amount carried forward from 1912 and prior	356.58	10.55
Amount carried forward from 1913	398.16	11.78
Amount incurred during 1914	2,625.82	77.67

Aside from the greater capital required for carrying accounts, an added cost of transacting credit business is the loss from bad accounts. By reference to Tables 9 and 15 it will be noted that the average loss from bad accounts is 8 cents per thousand feet for the city yards and 10 cents per thousand feet for the country yards. The total cost of transacting a credit business, therefore, if interest on the added capital is included, is approximately 50 cents per thousand feet in the city trade and 60 cents per thousand feet in the country trade.

Many methods have been employed by different dealers to reduce the credit burden. Although not the uniform practice, it is common for dealers to grant a discount of from 2 to 5 per cent, in exceptional cases 10 per cent, for cash or for a settlement of the bill within fixed date. Interest is charged on credit accounts from the date incurred in some cases, but more commonly after the expiration of a given period.

GROSS MARGINS.

LUMBER AND SIDE LINES.

As has been pointed out, the stock of merchandise sold through retail lumber yards embraces a variety of building and other supplies. In the large city yards this variety is reduced to a minimum, with lumber forming 85 to 95 per cent of the sales, while in the country yards other classes of merchandise form 50 per cent and more of the business handled. The profit and loss statements presented are based on the average of all stock sold, and therefore apply to the business as a whole. For this reason gross profits, operating expenses, and net profits, which are given as percentages of the sales, do not apply with strict accuracy to specific classes of stock. The actual gross gain, for example, varies not only as between different classes of merchandise but also on different species and grades of lumber. The species and grades sold in the largest volume are ordinarily handled on the lowest gross margin, and vice versa. These variations, as well as those applying to the actual cost of selling different classes of merchandise, have all been covered in the averages.

The species and grades of lumber which move in heavy volume are turned often and can, therefore, be handled on a lower gross margin than material of high value, which is sold in small amounts and not turned frequently. For example, Kansas City is predominantly a yellow-pine market, this species forming 80 to 90 per cent of the lumber sold through the retail yards. In over six years' business of two yards, it was found that yellow pine was handled on a gross margin of 17.10 per cent of the selling price, or $4.54 per thousand feet, while white pine, forming less than 3 per cent of the sales in volume, was handled on a gross margin of 28.31 per cent of its selling price, or $15.85 per thousand feet. Similarly, cypress, which constituted less than 6 per cent of the sales in volume, was handled on a 25.93 per cent margin, or $12.61 per thousand feet. Both the white pine and cypress was high-grade material selling at approximately $50 per thousand feet, while the yellow pine, which formed 84 per cent of the business, was sold at an average of $24.50 per thousand feet.

In Minneapolis the same situation was found, with the margins reversed as to species. Northern pine constitutes approximately 75 per cent of the sales in volume, and southern yellow pine less than 1 per cent. Operations were noted where in a year's business northern pine was handled on a $5.92 margin per thousand feet, and southern pine on an $8.54 margin. The average gross margins shown in Table 19, which were taken from actual operations in both cities, illustrate these relations of volume and operating margins:

TABLE 19.—*Average gross margins by species.*

Place and species.	Average selling price per thousand feet.	Gross gain.		Percentage[1] of volume of business.
		Per thousand feet.	Per cent.	
Kansas City, Mo.:				
Southern yellow pine	$24.54	$4.54	17.10	84.04
Douglas fir	35.06	9.13	26.04	2.40
Cypress	48.59	12.61	25.93	5.83
Redwood[2]	23.01	6.46	28.07	.91
Oak	48.65	5.69	11.69	3.24
White pine	55.97	15.85	28.31	2.67
Minneapolis, Minn.:				
Northern pine	24.82	5.92	23.85	75.63
Douglas fir	27.81	4.62	16.61	13.31
Hardwoods	42.37	5.61	13.24	9.06
Southern pine	39.75	8.54	21.48	.04
Other species	27.35	5.80	21.21	1.96

[1] Miscellaneous species comprising 0.91 of 1 per cent of the sales not included.

[2] Siding.

The actual gross margins on which different articles were handled ranged from 11 per cent on coal to 35 or 40 per cent on such articles as lightning rods, molding, etc. In the few cases where grain was handled the gross margin was exceedingly low, the minimum noted being approximately 3 per cent. It is generally recognized that grain can be handled on an exceedingly low margin. The actual margin on lumber obtained from concerns which kept separate records of different classes of merchandise was very close to the average shown in the statements already given. During a period of four years, for example, the actual margin on the lumber handled by over 140 line yards in Minnesota and the Dakotas averaged 22.8 per cent of the selling price. The average margin on which all business was handled in the 1,270 annual operations represented by Table 11 was 23.21 per cent of the sales.

To illustrate the varying margins on which the different articles may be handled, Table 20 is given. The figures represent the actual margins shown by the books of the companies.

TABLE 20.—*Actual gross profits on lumber and side lines at line yards.*

[Percentage of selling price.]

	Minnesota and Dakotas.[1] Over 140 operations.	Nebraska.[2] Over 30 operations.		Minnesota and Dakotas.[1] Over 140 operations.	Nebraska.[2] Over 30 operations.
Molding	36.8		Prepared rfg.		26.41
Paper	26.4		Hog troughs		26.21
Shingles	23.7	23.49	Ladders		25.28
Cordwood	23.4		Building paper, plaster, and wall board		23.46
Lumber	22.8	23.89	Screen doors and windows		23.09
Doors	20.5		Cement blocks		22.98
Sash	20.3		Sash, doors, and molding		22.80
Soft coal	18.8		Cement and plaster		21.75
Lath	18.1	26.86	Steel roofing and ceiling		20.19
Brick	17.9		Lime, sand, and brick		19.90
Cement	17.7		Paints and oils		19.39
Posts	14.6	15.06	Steel culverts		18.12
Miscellaneous sundries	14.1		Coal		17.41
Fence wire	13.7	17.01	Silos		16.95
Tile	13.4		School desks		16.26
Salt	12.4		Gates and tanks		11.73
Hard coal	11.9		Grain		10.97
Lightning rods		42.74			
Glass		34.92			

[1] Average 1912-1915, inclusive.

[2] Average 1914-15, inclusive.

While the margin on which lumber is handled is very close to the average for the business as a whole, it is the individual article of heaviest volume and yields the greatest aggregate gross profit of any one class of merchandise. Its weight is, therefore, greatest in determining the average margin of the entire business.

SHINGLES, LATH, AND POSTS.

Although no particular study was made of merchandising shingles, lath, and posts, considerable data were obtained which indicate not only the actual margins on which these forest products are handled in country yards but also their average costs and selling prices. A compilation of these figures is given below. The costs of merchandising and the net profits were obtained by applying the average percentage cost of merchandising to the selling prices of these articles. The calculation was the same as that used in the case of lumber, and assumes that it costs as much to merchandise $1 worth of shingles, lath, and posts as $1 worth of lumber or other merchandise.

From 252 annual country yard operations during 1912, 1913, 1914, and 1915 in Minnesota and the Dakotas the averages in Table 21 were compiled:

TABLE 21.—*Average cost and selling prices from 252 annual country yard operations.*

Item.	Shingles, per thousand pieces.	Lath, per thousand pieces.	Posts, per post.
Selling price	$3.42	$5.18	$.206
Cost price	2.65	4.22	.179
Gross profit	.77	.96	.027
Cost to merchandise	.46	.64	.028
Net profit	.31	.32	[1].001

[1] Loss.

Table 22 is based on 124 annual operations in Iowa and Nebraska for a period of four years:

TABLE 22.—*Average cost and selling prices from 124 annual operations.*

Item.	Shingles, per thousand pieces.	Lath, per thousand pieces.	Posts, per post.
Selling price	$3.51	$5.94	$.211
Cost price	2.51	4.47	.175
Gross profit	1.00	1.47	.036
Cost of merchandising	.49	.82	.029
Net profit	.51	.65	.007

DISTRIBUTION OF THE RETAIL PRICE.

In Table 9 it was shown that the average gross profit derived from 95 annual yard operations in Chicago, Kansas City, and Minneapolis was 21.95 per cent of the selling price; and in Table 11 the average gross profit obtained from 2,443 annual operations of country yards in Missouri, Oklahoma, Kansas, Iowa, Nebraska, Minnesota, and the Dakotas was 23.26 per cent of the selling price. Applied to lumber, these are equivalent to $5.80 per thousand feet out of the average selling price of $26.44 obtained at the cities in question, and to $7.15 per thousand feet out of the average selling price of $30.75 obtained in the country trade. From these averages together with those obtained from Table 1 in the report on wholesale distribution, the following proportion of the elements making up the retail price of lumber is derived:

TABLE 23.—*Elements making up the retail price of lumber.*

Distribution of retail price.	City trade.		Country trade.	
	Per thousand feet.	Per cent.	Per thousand feet.	Per cent.
To manufacturer	$13.95	52.76	$15.94	51.84
To wholesaler	.92	3.47	1.06	3.44
To railroad	5.77	21.82	6.60	21.46
To retailer	5.80	21.95	7,15	23.26
Average retail price paid by consumer	26.44	100.00	30.75	100.00

This division is shown graphically in figure 3. The costs of wholesaling and transportation were obtained by applying the average percentages obtained for these items to the wholesale price. The cost of wholesaling covers only the selling process and not the handling of lumber through wholesale yards or warehouses. The difference between the average f. o. b. mill price in the two classes of trade is due to the generally higher quality of lumber stocks demanded by the country retail consumer.

A similar distribution of costs was worked out for Kansas City, the figures being based upon data from Table 2 in the Report on Wholesale Distribution and the average cost of retailing in the operations studied at that point. The mill price and transportation cost are actual values derived from a compilation of the prices and freights paid on over 17,000,000 feet of lumber sold through three retail yards, with the exception that 4.5 per cent of the wholesale price at Kansas City was taken as the gross cost of wholesaling. The higher average retail selling price obtained in this case over that shown in the 24 annual operations at Kansas City is due to the fact that one of the three companies catered to a special trade and obtained higher average prices than those generally prevailing in the business.

TABLE 24.—*Distribution of costs shown for three companies at Kansas City.*

Distribution of retail price.	Per thousand feet.	Per cent.
To manufacturer	$15.47	55.49
To wholesaler	1.00	3.59
To railroad	5.76	20.66
To retailer	5.65	20.26
Average retail price paid by consumer	27.88	100.00

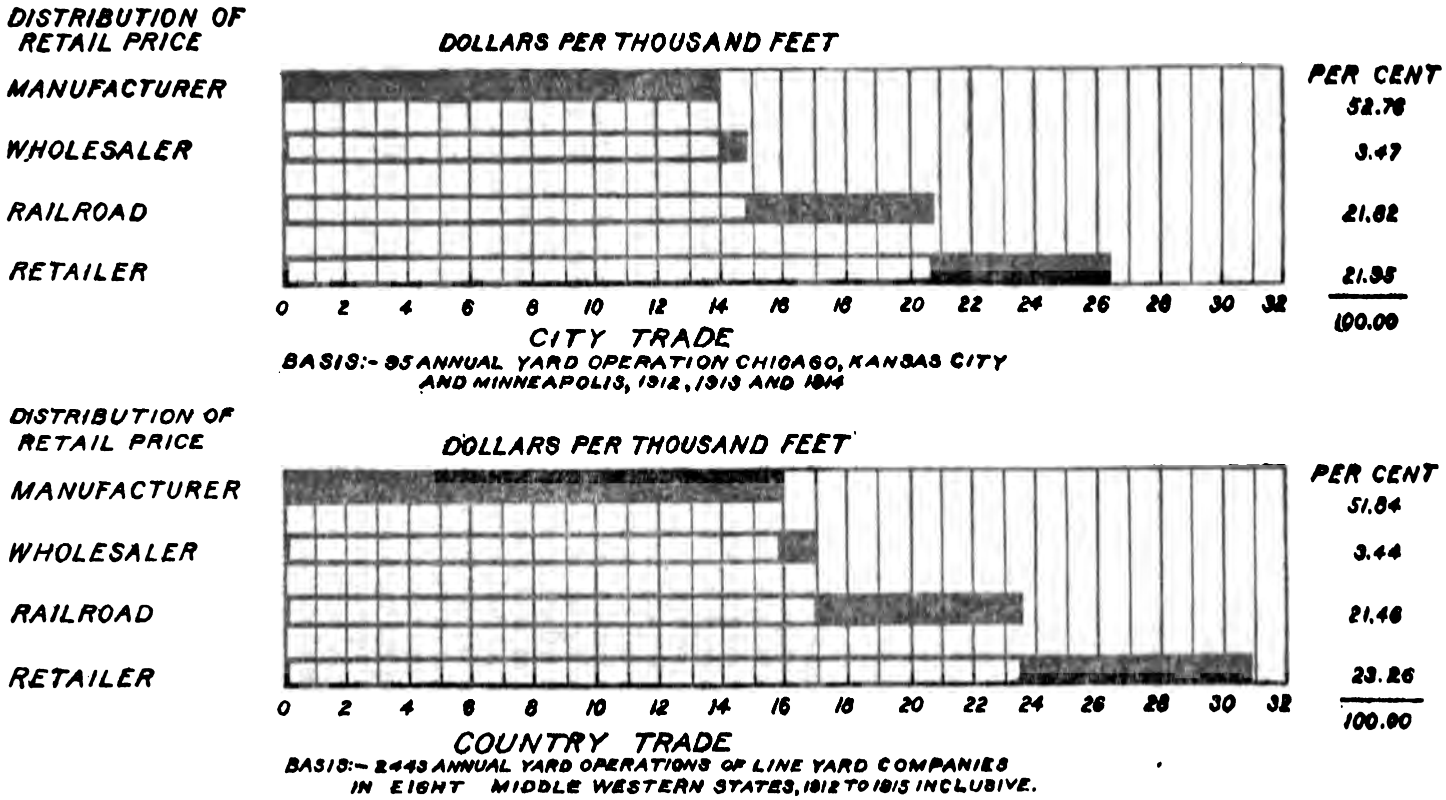

FIG. 3.—Distribution of average retail price of lumber in city trade and country trade. Black portions show charges imposed by different factors.

In figures 4 and 5 the distribution of the average retail price on specific grades and dimensions is shown at Chicago, Kansas City, and Minneapolis, and at Alliance, Nebr. The data are based on the average prices prevailing at the points in question during 1912, 1913, and 1914. The cost of wholesaling is in each case 4.5 per cent of the delivered wholesale price as determined from previous tables. The cost of freight is based upon estimated weights. The sum of the amounts taken by manufacturer, wholesaler, and railroad, therefore, represents the average wholesale price as determined from the price charts. The total price paid by the consumer represents the average retail price similarly determined.

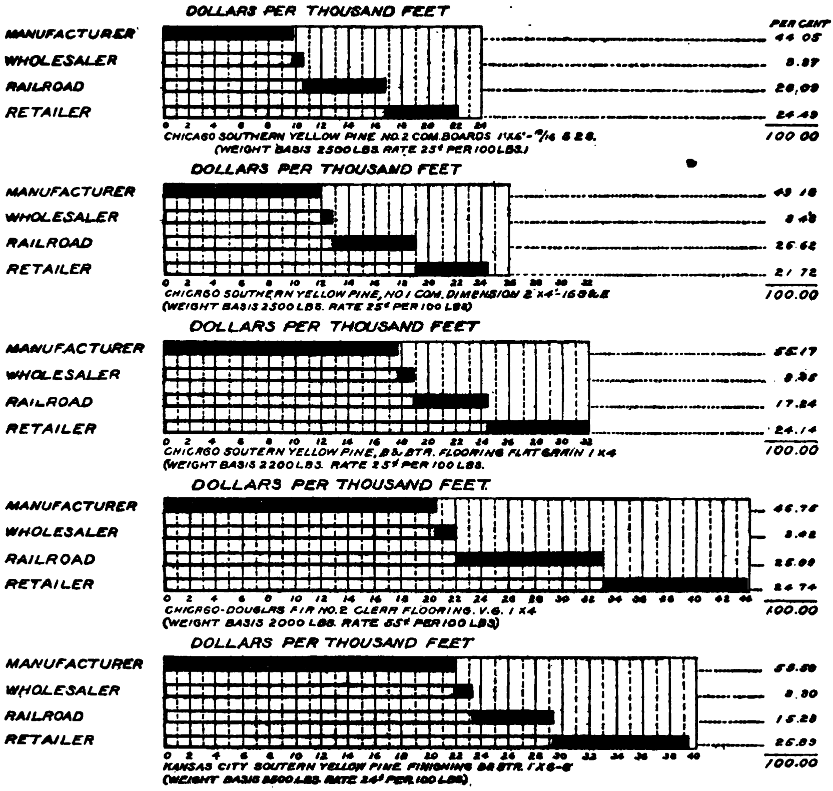

FIG. 4.—Distribution of average retail price of specific grades of lumber. (Black portions show charges imposed by different factors.)

It will be noted that in all cases from 15 to 45 per cent of the final retail price of lumber goes to the railroads, the amount varying according to the freight rate and class of material. In the case of yellow pine it centers between 20 and 30 per cent for common grades and between 15 and 20 per cent on the grades of higher value. In the case of common grades of Douglas fir shipped into the region from the coast the proportions are much higher, ranging from 35 to 50 per cent. From 20 to 30 per cent of the final price goes to the retailers. The manufacturer receives from 25 to 60 per cent and the wholesaler from 3 to 4 per cent of the consumer's price.

Transportation costs, centering between 20 and 25 per cent of the retail price, are practically equivalent to the cost of retailing. Taking Table 23 as a basis, the total cost of distribution in city trade is 47.24 per cent of the retail price, leaving the manufacturer 52.76 per cent; 21.82 per cent is absorbed by the railroads. The actual cost of wholesale and retail merchandising is 25.42 per cent of the retail price. The percentages stand approximately the same in the country trade.

The effect upon retail lumber prices of a local timber shortage, resulting in shifting the source of supply to remote sawmills, is shown strikingly by figure 6, based upon the average yearly price received at yards in Minnesota. The growing scarcity of northern pine is, of course, not the only cause of the rising prices which have led to heavy importations of western timber, but is undoubtedly a very important one.

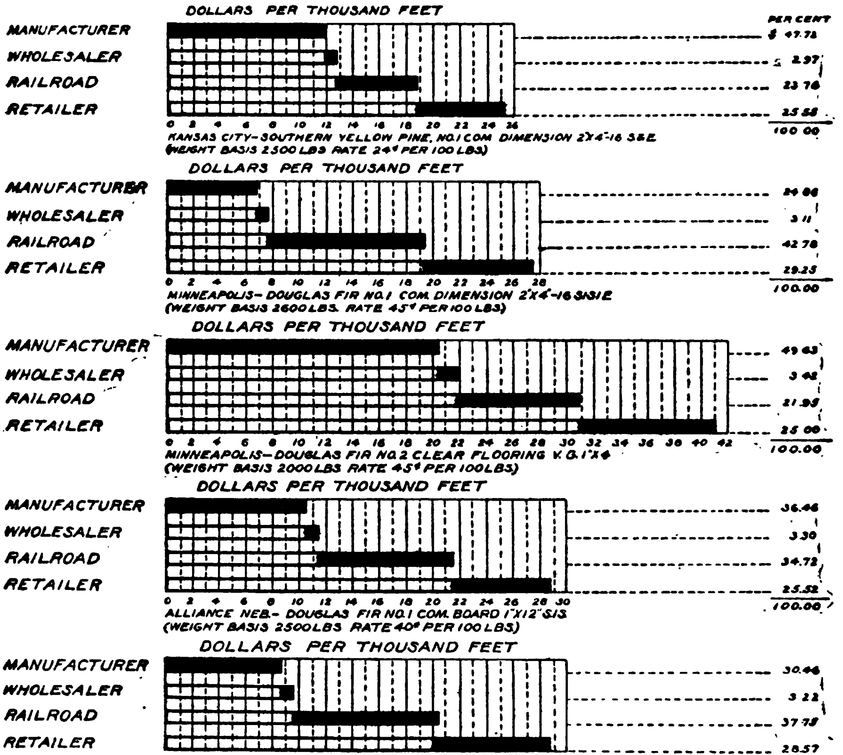

FIG. 5.—Distribution of average retail price of specific grades of lumber. (Black portions show charges imposed by different factors.)

COMPARATIVE COST OF DISTRIBUTING LUMBER.

A comparison of the cost of distributing lumber with merchandising costs on other classes of articles in daily demand would be exceedingly interesting, although apt to give erroneous conclusions unless all factors surrounding the marketing of a given product are carefully considered and weighed. For example, the cost of merchandising perishable products is much greater than that of staple commodities and such products are not comparable with lumber and other building materials. Unfortunately the available data on the merchandising costs of other manufactured articles are extremely limited. A comprehensive study of this nature was made by the Bureau of Business Research of Harvard University on the retailing of shoes. The results of its work are given in publication 12, entitled "Object and History of the Bureau with some Preliminary Figures on the Retailing of Shoes." Although not directly comparable, the data indicate that the retailing of lumber and other classes of merchandise sold through lumber yards is more cheaply conducted than the retailing of a highly manufactured article like shoes. The methods of distribution are very similar, however, as evidenced by the following excerpt from publication 12:

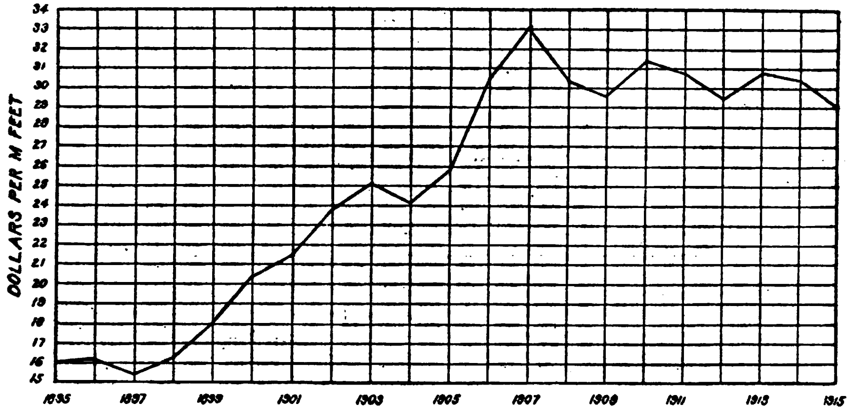

FIG. 6.—Trend of average retail price of lumber at rural points in Minnesota during the past 21 years as shown by records of line lumber yard company operating over 25 yards. Averages based on total yearly sales of lumber divided by total footage sold. In 1895 all lumber came from Minnesota mills at transportation cost of approximately $2 per thousand feet. In 1915, 52 per cent came from West Coast at transportation cost of from $10 to $12 per thousand feet.

> Although compared with other commodities such as drugs and textiles, it (footwear) is simple in its variety of product, nevertheless in its methods of distribution it illustrates practically all the main channels from maker to user. It passes through wholesaler and retailer, through dealer only, and direct to user by the manufacturer's own stores and by mail. For its retailing we find all the main types of retailer—*the retailer with but one store and one commodity*—footwear only; the *department store* in the city and the *general store* in the country with many commodities; the *chain store*—both manufacturers' and nonmanufacturers', local and interstate, with a varying number of stores handling footwear only.
>
> The commodity, shoes, is a staple for which as a whole there is a fairly calculable demand. There are fluctuations in demand caused by season and style changes which are problems of distribution more than of production. The production of shoes has been fairly well standardized and is fairly unfluctuating. In other words, problems of production are not so closely related to problems of distribution in the distribution of shoes as in the distribution of some commodities, for example, food products.

The costs presented are expressed in percentages of net sales. Those given for gross profit and total operating expenses are quoted below:

GROSS PROFIT.

Gross profit so far encountered ranges from 20 per cent to 42 per cent of the net sales, according to the grade of goods and with almost exactly the same number above 30 as below 30 per cent. The bureau is inclined to think that under present conditions the typical gross profit of shoes retailing at or under $3.50 will be found to run from 23 to 25 per cent and for those retailing above that price a percentage of from 30 to 33 is the type.

Gross profit as treated above includes discounts.

OPERATING EXPENSE.

Total operating expense so far encountered ranges from 18 per cent, or possibly a little less, to 35 per cent of the net sales in going concerns. The figures as a whole center about 24 per cent, that is, about as many are above as below 24 per cent, with the operating percentages of medium grade stores centering around 23 and of higher grade stores around 27.

Freight and cartage is not included in the above operating expense percentages, as it is deducted from the merchandise statement. Nor is interest included, which is deducted from net profit.

The essential facts in the distribution of shoes are summarized by the bureau in Table 25:

TABLE 25.—*Summary table of percentages.*

Item.	Lowest percentage.	Highest percentage.	Percentage about which data center (not an average)	Percentage about which a concentration is sufficient to indicate a realizable standard.
Gross profit, including discounts	20.0	42.0	[1] 23–25	....
Total operating expense, not including freight and cartage and interest.	18.0	35.0	[1] 23.0 [2] 27.0	[1] 20.0 [2] 25.0
Buying expense	.8	1.8	1.1	1.0
Sales force	5.0	10.3	8.0	7.0
Advertising	.9	8.8	2.0	1.5
Deliveries	1.8	14.6	5.0	3.0
Interest	1.0	7.9	2.5	2.0
Stock turns	1.0	3.6	1.8	2.5
Annual sales of average sales person	$5,000	$16,000	$10,000	....

[1] Low grade. [2] High grade.

Attention is called to the fact that operating expense does not include the item of cartage, whereas this was figured in the retail lumber yard statements. The items covered by the bureau were obtained from the records of 130 retail shoe stores in large cities. They were later checked without being materially affected by returns from 650 stores in 26 States.[1]

While operating expenses in retailing lumber appear considerably lower, it is probable that this is largely due to the item of rent. In the case of shoes this centers about 5 per cent, whereas on lumber sold through the yards in Chicago, Kansas City, and Minneapolis the items of rent, taxes, and insurance aggregate only 1.96 per cent. This is to be expected since retail lumber yards are not located in the main business districts but in outlying sections where land values are much lower.

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[1] Statements by Seldon O. Martin, in Report of Twenty-seventh Annual Meeting of the American Economic Association, The American Economic Review, Vol. V, No. 1, Supplement, March, 1915.

A comparison of the percentages of the retail price received by manufacturers of shoes and of lumber respectively brings out forcibly the extraordinarily heavy cost of railroad transportation in the distribution of lumber. In the report of the American Economic Association already referred to Prof. Martin is quoted as follows:

> Forty per cent of the price paid for a pair of shoes is consumed in getting the shoes from the manufacturer to the consumer.

He further stated that the transportation cost on shoes "is found ranging from 0.5 to 0.8 of 1 per cent of the retail selling price. Only on shoes borne from Massachusetts to California is this cost found reaching 2 per cent."

ECONOMIC SERVICE OF RETAIL LUMBER YARDS.

The total per capita consumption of lumber in the United States in 1915 is estimated by the Forest Service at 375 board feet, of which more than 75 per cent is distributed to the consumer in small amounts by retail yards. The average sale of lumber by the ordinary retail yard is considerably less than $100. Some retailers placed it as low as $10, especially in the country trade. Reports from 781 dealers throughout the 11 States indicated that approximately 60 per cent of their sales have been in amounts of less than $100. From the records actually reviewed this estimate appears very conservative. Sales of lumber ranged from as low as 10 cents to several hundred dollars. Further, even large sales must often be delivered to consumers or contractors in small amounts as required in the construction of buildings, on account of lack of storage space at the building site to prevent exposure to weather, and for similar reasons; and from a distributing standpoint represent the handling of small lots.

The handling and storage of lumber between producer and ultimate consumer constitute from 20 to 25 per cent of the final cost. The elimination of this process would reduce materially the cost of lumber distribution. But to meet the "small lot" demand, which forms 60 per cent of the trade, by direct shipments from manufacturing mill to consumer would require less than carload shipments, which freight rates now make impossible as a general practice. Direct shipment of the total volume of such sales would impose difficulties upon the traffic service of the country, and would probably result in excessive freight charges due to necessary increases in rolling stock and increased operating expenses incident to handling less than carload movements. Furthermore, the mills would find it difficult to conduct such business with its complexities of small orders, finance, credits, local deliveries, local competition, and complaints at long range. And the consumer of lumber in small quantities would lose the benefits of local service in such matters as promptness in filling orders, delivery to point of use, and expert assistance in meeting his requirements by selection from many kinds of wood and other structural materials. These objections, while not necessarily conclusive, should not be overlooked in considering the extension of direct distribution from manufacture to user.

Large assembling yards, centrally located, could doubtless handle the business with a lower scale of freight rates on less than carload shipments to outlying points, but are subject to the same disadvantages in respect to the local service demanded by the public. This method, however, does not eliminate the handling and storage of lumber between mill and consumer, which from the data obtained costs approximately the same, volume for volume, in the country as in the cities. It is, therefore, simply the application of large-scale operations to the present retailing system. The method would often increase costs of handling from the additional loading and unloading of cars. It is open to question if such a method could be made more economical than the local yard.

This discussion refers to the large amount of lumber demanded in less than carload lots. The retail value of a carload of lumber probably averages over $500. Sales of this amount when all the material is obtainable from one mill can be ordered by the local dealer and delivered direct from the car to consumer. This class of business is therefore handled on a closer margin than yard material sold in small lots. In short, costs on this class of business tend to become merely the charge for handling the order, whether it be placed with the local dealer, a mail order house, a wholesaler, or the mill itself, except where the local dealer hauls the lumber from the car to the point of use.

Considering the location of the bulk of the sawmills with respect to the 100,000,000 lumber consumers throughout the United States, together with the service demanded by the average user, it seems apparent that some type of local retail yard which assembles stocks of lumber from several producing regions in carload lots and provides time and place utility for the customer is essential to the practicable distribution of the bulk of the lumber required in relatively small and diversified amounts. As previously pointed out, retail lumber units at the present time are too small in a great number of cases and there is too much duplication of investment and expense. On the other hand, local yards have a wide field for the development of further service to the public. They are not only distributing lumber but a great variety of other building supplies, particularly in the country districts. This in itself tends to eliminate duplication in distribution. The manufacturer of lumber or any other material is primarily interested in the sale of his own product; but there are many building materials upon the market and the average consumer is more or less ignorant of the one best suited to his particular requirements. The retail dealer who makes a technical study of the relative merits of different structural materials for different uses may occupy the position of an unbiased adviser who is capable of rendering a valuable economic service to his community.

On the other hand, there is undoubtedly a greater or less opportunity to eliminate intermediate handling on lumber required in larger quantities, by direct shipments from the mill to the consumer or small retail yard. The development of the "mixed car" trade, in which a carload may be made up from every product of a mill, floor joists to shingles, is an important factor in this direction. Only competition in the combined requisites of economy and service to lumber users can determine the rightful place of each method of distribution. Obviously the "classification of the trade" which determines the scope of each agency in distributing lumber must thus be a natural one, working itself out by unrestricted economic processes.

RETAIL LUMBER PRICES.

The lumber industry is loose and diversified and manufacturers rarely have a voice in determining the retail price of their products. Retail prices are determined by the local dealer or the line yard office and are based primarily upon the delivered cost of the lumber to them. Transportation is a large factor.

List prices are seldom a true index of the actual retail prices, which are subject to discounts and varying competitive pressure. List prices appear subject to more frequent changes in large cities than in country districts. Small or job lot sales usually bring substantially higher prices than large sales or house bills, which are subject to keener competition and can often be handled at a lower cost.

The average retail prices obtained by dealers in Chicago, Kansas City, and Minneapolis from 1912 to 1914 ranged from $25 to $27 per thousand feet. Average prices in rural districts varied from $29 to $32 per thousand. Consistently higher prices in the country appear to be due to a higher average cost of the stock and to larger gross profits. Slightly higher prices were reported from one-yard points than from points containing two or more yards.

Retail prices in cities like Chicago appear to trail the ups and downs of the wholesale market quite closely, particularly on the grades of lumber in great demand. In smaller towns and country districts the fluctuations of the wholesale market are reflected in retail prices to a less degree. Country prices seem more sensitive to local competition.

The retail distribution of lumber in the Middle West is essentially competitive, although the intensity of competition varies in different localities and classes of trade. Price fixing and other practices in restraint of trade appear to be local in character and of slight importance in lumber distribution as a whole. New types of distributors, such as catalogue houses and cooperative companies, and other recent developments in the trade have sharpened its competitive tendencies. They also appear to be developing better methods of merchandising in which greater service to the consumer is noticeable.

The authentic publication of retail as well as mill and wholesale prices should go far to clear up the evils of blind competition, misunderstanding between different branches of the industry, and suspicion and prejudice on the part of the public.

GENERAL FACTORS.

The retail price of lumber represents the sum of the gross costs of manufacture, wholesale merchandising, transportation, and retail merchandising. The proportional charges imposed by these functions have already been indicated. The extent to which fluctuations occur in these gross costs depends to a considerable degree upon competition as influenced and intensified by the forces of supply and demand. The retail lumber dealer is affected directly by fluctuations in mill and wholesale prices through the cost of the lumber which he buys and necessarily carries in stock from three to eight months. His ability to resell at a uniform or stable price, despite fluctuations in the wholesale market, depends upon the competition which he has to meet in his own trade.

Lumber manufacturers, for the most part, unlike manufacturers of many other products exercise no restraining influence over the price which the retail dealer may charge the consumer. The sale of lumber is not easily adapted to such a scheme, which is practically impossible under the diversified and unorganized condition of lumber manufacture and distribution to-day. The retail dealer names his price independently of the manufacturer. In the region studied a uniform or standard method of determining the retail selling price of lumber does not exist. "Asking" or list prices of various species

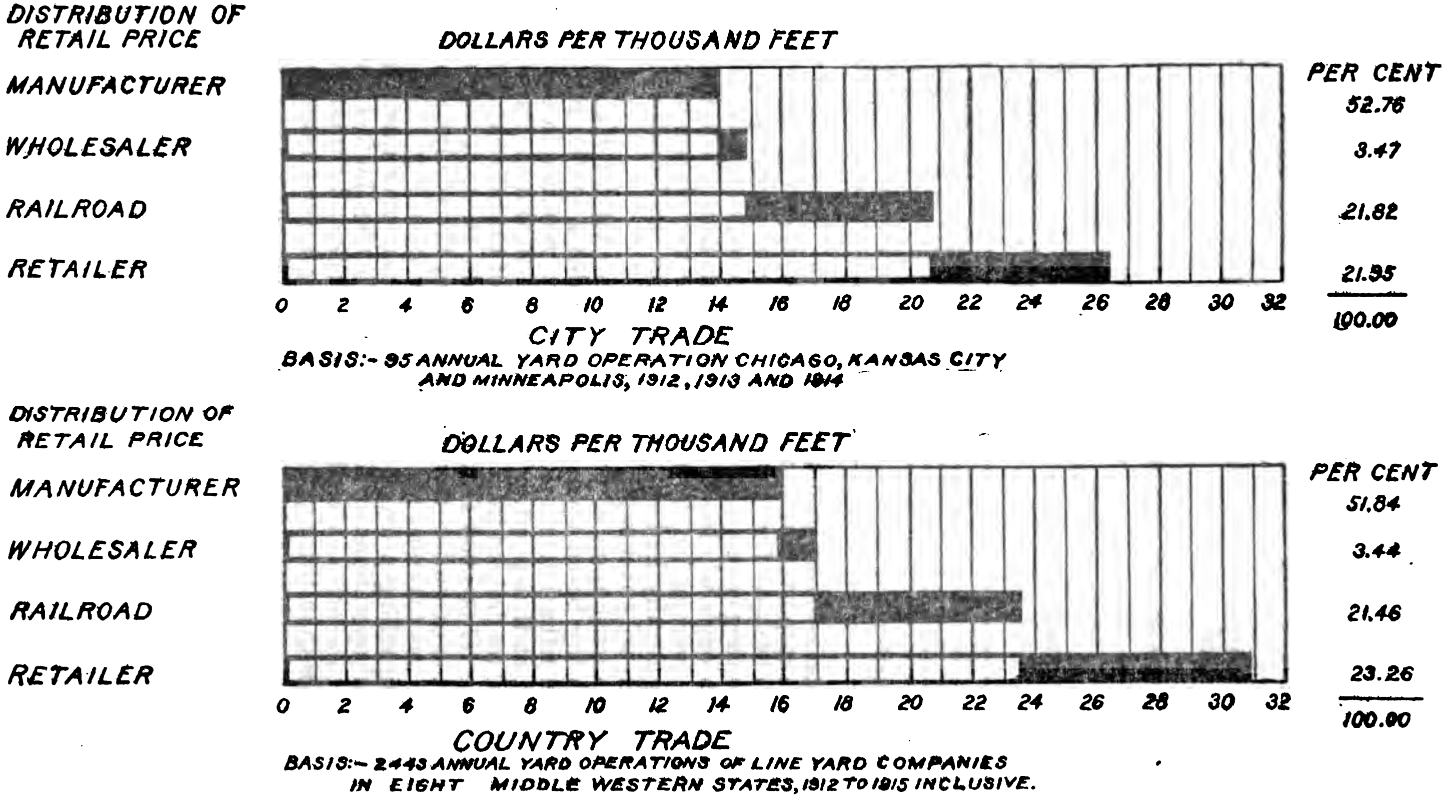


FIG. 3.—Distribution of average retail price of lumber in city trade and country trade. Black portions show charges imposed by different factors.

In figures 4 and 5 the distribution of the average retail price on specific grades and dimensions is shown at Chicago, Kansas City, and Minneapolis, and at Alliance, Nebr. The data are based on the average prices prevailing at the points in question during 1912, 1913, and 1914. The cost of wholesaling is in each case 4.5 per cent of the delivered wholesale price as determined from previous tables. The cost of freight is based upon estimated weights. The sum of the amounts taken by manufacturer, wholesaler, and railroad, therefore, represents the average wholesale price as determined from the price charts. The total price paid by the consumer represents the average retail price similarly determined.

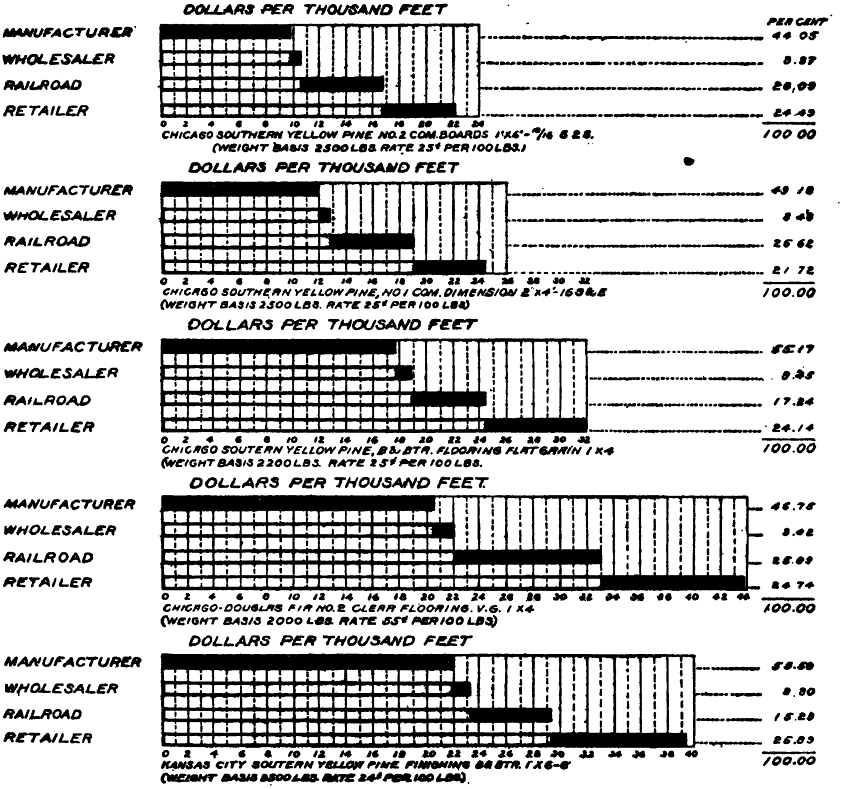


FIG. 4.—Distribution of average retail price of specific grades of lumber. (Black portions show charges imposed by different factors.)

It will be noted that in all cases from 15 to 45 per cent of the final retail price of lumber goes to the railroads, the amount varying according to the freight rate and class of material. In the case of yellow pine it centers between 20 and 30 per cent for common grades and between 15 and 20 per cent on the grades of higher value. In the case of common grades of Douglas fir shipped into the region from the coast the proportions are much higher, ranging from 35 to 50 per cent. From 20 to 30 per cent of the final price goes to the retailers. The manufacturer receives from 25 to 60 per cent and the wholesaler from 3 to 4 per cent of the consumer's price.

keen between dealers in adjoining towns to which farmers can drive with about equal convenience, although retail organizations have frequently attempted to eliminate this kind of competition by classifications of the retail trade or allotments of distributing territory.

A marked difference in the average price obtained was found to exist in the two classes of trade described. This is illustrated by the comparison given in Table 26, based on actual sales made by two companies:

TABLE 26.—*Average price obtained by different classes of trade.*

Month (1914).	Large city yard, average price received, all lumber sold, per thousand feet.		Small country yard, average price received for No. 1, dimension 2 by 4 (12 to 16 feet), Douglas fir, per thousand feet.	
	Estimates only.	Estimate sales excluded.	Estimates only.	Estimate sales excluded.
January	$23.00	$31.09	....	$30.00
February	35.16	30.48	....	30.00
March	24.10	29.20	$27.00	30.00
April	23.53	30.42	27.00	30.00
May	25.49	29.79	27.50	30.00
June	26.24	31.54	....	30.00
July	26.41	30.00	....	30.00
August	27.03	29.57	....	30.00
September	27.93	30.62	27.75	30.00
October	25.56	29.58	27.00	30.00
November	25.09	29.72	....	29.00
December	26.00	27.36	....	....
Average	25.35	29.99	27.20	29.91

These two cases probably represent the extremes—a large yard in a city of over 250,000 people, in which there are many yards and keen competition for business and where estimates are figured very closely, and a small country yard in a farming community where competition is less keen, with but one yard in the town, and where estimate sales are few. In the latter case the number of estimates constituted only 4.2 per cent of the total number of sales, but 49 per cent of the lumber of all grades sold at the yard during the year. The differences in the average prices received by the city yard in the two classes of trade were of course influenced by the assortment of stock sold in each, since the figures are based on the total footage and price of all lumber sold monthly; but they serve to indicate the margin which may exist between the two classes of sales. In point of relative profits, the country yard made 8 per cent on its investment, while the city yard earned approximately 6 per cent.

If the points studied are representative of the trade as a whole, list prices can not be taken as the actual or average prices received for lumber by the retail dealer. The prices at which the dealers whose sale tickets were examined sold their lumber varied greatly. Sales by the same dealer dropped in some instances to 15 or 20 per cent below the list prices. For example, the sales of a yard in Dakota where competition is considered very keen averaged over a period of several months 5 per cent below the list prices on small sales and 18 per cent below on estimates. This variation characterized all price records examined, although the prices at one-yard points did not appear so irregular as at points where there were two or more yards. The small sales followed list prices as a rule and in some months equaled them in every case, while the bill sales or estimates, when plotted, ranged below the list prices with no uniformity as to margin, indicating that the material was usually sold at a price made specifically to obtain the business.

The average prices received monthly or yearly by the dealers vary considerably on account of the foregoing conditions and the varying proportions of different priced lumber sold. In figure 7 are shown the average monthly prices received for specific grades and sizes by a yard in North Dakota, in small sales and large sales separately. The average price indicated is only approximate, since it is based on the proportion of large and small sales during the entire period rather than in each month. The data bring out, however, the varying range between the prices at which small and large sales are made and the effect of the volume of business upon the average price received for a specific grade of material.

List prices are not changed frequently as a rule, particularly in the smaller towns. Some dealers prepare a new list annually; others when the wholesale market rises or falls a stipulated amount, as $1 or $2 per thousand feet; still others maintain the same list for several years. Line yard companies often issue lists applicable to all of their yards or to particular groups of yards, depending upon the kind of lumber carried in stock and the location of the yards with respect to freight rates. In some of the Middle Western States the same list prices must be quoted by a line yard company at all yards within the State under the requirements of State laws.

In regions in which freight rates from producing points are fairly uniform the same list prices, especially on grades moving in the greatest volume, are often used by a large number of dealers. No standard practice is followed in the territory studied, it being largely a matter of judgment or policy and of competition. The fact, however, that a dealer in a small town does not change his list prices is no indication that the average price received monthly or yearly remains the same. This depends upon the month's or year's business and the prices at which the dealer actually sells in order to obtain the required volume of trade. List prices are changed oftener in the larger cities, since diversified competition makes it necessary for dealers to follow fluctuations in the wholesale market more closely than in the country.

It has already been shown that the costs incident to the movement of lumber, even of similar species and grades, from mills to local distributing and consuming points vary greatly. Transportation is the largest variable in the cost of lumber to different retail dealers. Many articles like shoes, clothing, certain brands of food, etc., are sold throughout the United States at standard prices regardless of the distance from point of manufacture and variations in freight rates. This is possible because the articles are not of great weight and the cost of freight is an insignificant part of their final price. Variations in freight rates on lumber, however, impose such great and unequal charges that it must necessarily be priced to the dealer

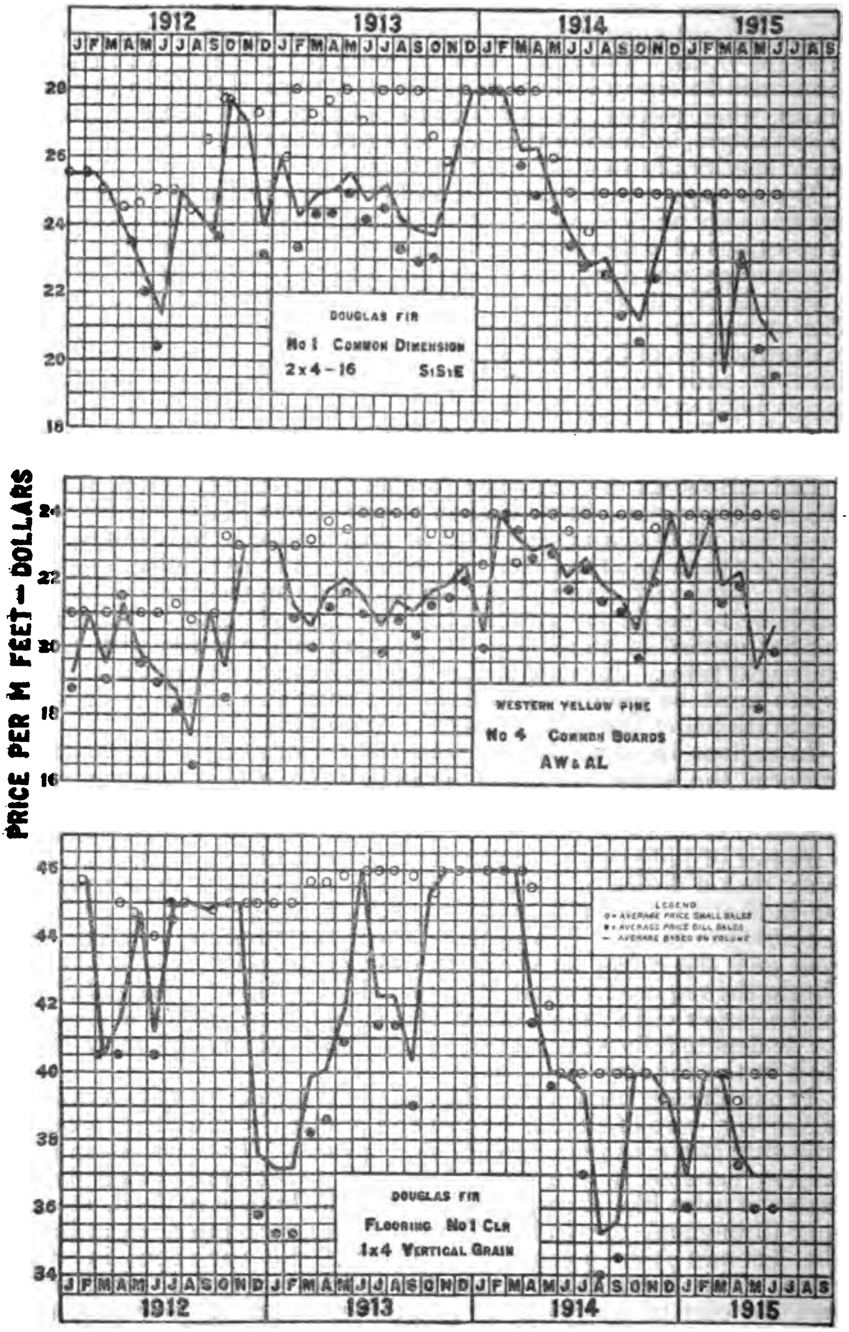


FIG. 7.—Course of retail prices at a yard in one of the larger cities in North Dakota showing relation between prices received for similar material when sold in small and in large sales.

at any given point on the basis of the freight rate to that point. Although dealers follow no common standards or uniform methods in fixing their retail prices, the starting point is, of course, the delivered cost of the material. It therefore follows that retail prices at different points throughout the country must vary broadly according to the f. o. b. cost of lumber to the dealer.

Considering the Middle West as a whole, however, the average retail cost of lumber to the consumer does not vary as greatly as might be expected. Freight rates from the main producing regions permit the movement of lumber into the Middle West in the greatest volume from the South, North, and West, and the competition of these regions in supplying the retail market tends to have an equalizing influence upon prices.

In Kansas City, Chicago, and Minneapolis the companies whose records were examined obtained the following average prices per thousand feet for their lumber.

Place.	1912	1913	1914	Average.
Chicago	$25.40	$28.93	$24.50	$27.15
Minneapolis	24.93	28.17	26.30	26.77
Kansas City	24.50	27.13	24.77	25.41

These figures are not directly comparable, since variable factors enter into each, such as transportation costs, differences in the species handled, varying assortments and proportions of stock, etc. They do serve, however, as an indication of the average retail cost of lumber at these three large cities.

It will be noted that the prices at Kansas City are lower than at Chicago or Minneapolis. This may be explained by the differences in freight tariffs and species handled. The Chicago retail trade handles a greater variety of species. Minneapolis is a northern pine market. Its lumber comes in under a low freight rate, but is higher priced on the average than southern pine. On the other hand, Douglas fir enters the Minneapolis retail market in small quantities on the high freight rate of 45 cents per hundredweight.

The average prices obtained by different companies in the same city naturally show marked variations, due to different classes of stock handled and differences in the dealers' ability.

The higher returns in 1913 appear to be accounted for by the rise in wholesale prices during the latter part of 1912 and the early part of 1913. These are of course related in turn to changes in general business conditions which strengthened the demand for lumber.

The average retail price shown by the 1,000 annual operations of yards in Missouri, Oklahoma, and Kansas during the period from 1912 to 1913, inclusive, was $29.73 per thousand feet. This figure is approximate only, since the companies did not keep their lumber sales separate from their total sales. It was obtained by ascertaining the average cost of lumber to the dealers per thousand feet. The records of the various companies show this to be $22.66. The gross profit of 23.79 per cent on their sales was then converted to a gross profit on the cost of merchandise, and this percentage, which amounted to 31.22, was applied to the average cost price. This calculation assumes that the gross profit was the same on all merchandise sold, a method which is not strictly correct but is considered sufficiently accurate for practical purposes. It should be borne in mind that these three States are essentially yellow-pine markets favorably located in point of transportation from the pine manufacturers. Parts of both Missouri and Oklahoma, in fact, are in the southern pine belt.

The average price received by the line yards studied in Minnesota and the Dakotas, as shown by 1,270 annual operations covering the period from 1912 to 1915, inclusive, was $31.24 per thousand feet. This figure is based primarily upon records of the actual footage sold and prices obtained. The average prices per thousand feet received yearly were as follows:

1912	$30.89
1913	31.74
1914	31.76
1915	30.58
Average	31.24

The average price received as shown by the books of companies which kept a record of the total footage sold and the total price obtained was $31.22 per thousand feet during the period from 1912 to 1915, inclusive. These figures are shown in more detail in Table 27.

TABLE 27.—*Average retail prices, yards in Minnesota and the Dakotas.*

Year.	Total sales of lumber.		Average price received per thousand feet.
	In board feet.	In dollars.	
1912	61,624,395	$1,879,781.27	$30.50
1913	70,914,444	2,265,532.51	31.94
1914	105,114,848	3,323,375.86	31.64
1915	75,381,706	2,304,773.68	30.57
Total	313,035,293	9,773,463.32	31.22

These figures cover the lumber distributed in 468 annual yard operations at various points throughout Minnesota and the Dakotas. The principal lumber handled in these yards was northern pine and Douglas fir. The average price shown, it will be noted, substantiates very closely the figure given for all the yards from which data were obtained in the territory.

While average selling prices were not obtained from a large number of yards in Nebraska and Iowa, the data collected indicate prices close to those prevailing in Minnesota and the Dakotas. The average prices per 1,000 feet received by 19 yards distributed throughout the territory were as follows:

1912	$31.45
1913	31.98
1914	31.53
1915	30.54
Average	31.36

The principal species carried in the retail yards in these two States are southern pine and Douglas fir; the former predominates in Iowa and eastern Nebraska, and the latter in western Nebraska. Freight rates on southern pine range from 24 to 50 cents per 100 pounds, and on Douglas fir 40 to 55 cents.

The figures indicate that the average f. o. b. cost of lumber to the dealers in each of these regions was nearly the same.

Region.	1912	1913	1914	1915
Average buying price per thousand feet, Nebraska and Iowa yards	$23.96	$25.57	$23.10	$23.27
Average buying price per thousand feet, Minnesota and Dakota yards	23.32	24.65	24.43	23.52

These prices apply to points of different size and varying sets of conditions over broad regions. The majority of the distributing points, however, are country towns or so-called country yards. They include one-yard points, two-yard points, etc., up to several towns of 25,000 population or over in which there are six or more yards. Considering the preponderance of small towns, the data should be a fair index to the average retail cost of lumber under the usual conditions of country trade. It should be borne in mind, however, that prices vary greatly between different points in the same region, and the reader is cautioned against the conclusion that the average prices given can be applied with accuracy to specific localities. To illustrate the extent to which average prices at different points in the same region may vary, Table 28, based on actual lumber sales, is inserted.

TABLE 28.—*Average price received per 1,000 feet determined from total sales of lumber and total feetage sold.*

No.	Yard.	Population of point less than—	Total number of yards at point.	Average price received per 1,000 feet, 1915.	No.	Yard.	Population of point less than—	Total number of yards at point	Average price received per 1,000 feet, 1915.
1	Nebraska	300	1	$31.09	9	Nebraska	350	2	$33.39
2	Nebraska	300	1	31.53	10	Nebraska	400	2	34.36
3	Iowa	100	1	31.07	11	South Dakota	400	2	28.60
4	Nebraska	200	1	33.65	12	Nebraska	100	2	29.79
5	Nebraska	400	1	31.02	13	Nebraska	800	2	30.44
6	South Dakota	300	1	32.20	14	Nebraska	3,100	3	27.69
7	Minnesota	100	1	30.57	15	Nebraska	2,500	4	30.04
8	Nebraska	100	2	29.79					

AVERAGE PRICES AT ONE-YARD POINTS.

Average prices obtained at a number of one-yard points are given in the preceding table. In the table given below a comparison is made between the average price received at a number of one-yard points and that obtained at points containing more than one yard.

Character of point.	Average price received per 1,000 feet.	Number of annual yard operations.
One-yard points	$32.70	24
Two or more yard points	31.04	55

All of these records are from typical country yards in towns of less than 500 population, and the sales cover the same period from 1912 to 1915, inclusive. While the data are not sufficient to justify definite conclusions, they indicate that somewhat higher average prices are received at one-yard points than at points with keener competitive conditions. The difference should not be taken as necessarily the actual difference on every thousand feet, since a portion of it may be due to the assortment of stock sold. Any broad conclusions drawn from such a comparison of prices is liable to error because of the many factors influencing average prices. In every year, however, the one-yard towns showed a higher average price.

A comparison of the average prices obtained by dealers in Chicago, Minneapolis, and Kansas City with those secured by the dealers at smaller points shows that the country dealers obtained from $2.50 to $4 more per thousand feet than city dealers. This higher selling price is accounted for (1) by a higher average cost of material to the country dealer, and (2) by the larger gross profit obtained by him. The higher average cost of lumber to outlying dealers may be due to heavier transportation charges and to a higher average quality of stock. It is generally asserted that yards in the small towns handle on the average a higher quality of lumber than large city yards. Furthermore, the demands of the two classes of trade are different, and the assortment of lumber sold in each varies greatly.

Table 29 brings the essential factors of price together for comparative purposes:

TABLE 29.—*Factors influencing price.*

Point or region.	Average cost of lumber to dealers, per thousand feet.	Gross profit realized by dealers, per thousand feet.	Average selling price, per thousand feet.
Chicago	$21.05	$6.10	$27.15
Kansas City	19.76	5.65	25.41
Minneapolis	21.13	5.64	26.77
Minnesota and Dakotas	23.99	7.25	31.24
Nebraska and Iowa	24.93	6.43	31.36
Missouri, Oklahoma, and Kansas	22.66	7.07	29.73

The differences in average prices received in the country and city trade and the distribution of these differences are given in Table 30:

TABLE 30.—*Distribution of differences between average retail prices received in country and city trade.*

Country trade.	City trade.		
	Chicago.	Kansas City.	Minneapolis.
Minnesota and Dakotas:			
Average retail price higher by	$4.09	$5.83	$4.47
Distribution of increase—			
Cost of material	2.74	4.23	3.07
Operating expense	— .49	— .24	— .66
Net profit	1.84	1.84	2.06
Nebraska and Iowa:			
Average retail price higher by	4.14	5.88	4.52
Distribution of increase—			
Cost of material	2.87	4.36	3.20
Operating expenses	— .40	— .15	— .57
Net profit	1.67	1.67	1.89
Missouri, Oklahoma, and Kansas:			
Average retail price higher by	2.58	4.32	2.96
Distribution of increase—			
Cost of material	1.41	2.90	1.74
Operating expense	.26	.51	.09
Net profit	.91	.91	1.13

Except in the Southwest operating costs per thousand feet were less in the country trade, while in all instances higher net profits are shown by country yards. The returns expressed in board-foot units, however, may not be a true index to the profit as a percentage on the investment in the business.

By reference to Tables 11 and 14 it will be noted that an average gross profit of $7.25 per thousand feet in the Northwest yielded a return on the investment of 12.5 per cent, while a gross profit of $7.07 per thousand feet in the Southwest yielded a net return on the investment of only 7.4 per cent. In Kansas City a gross profit of $5.65 per thousand feet yielded a return on the investment of 6 per cent; while in Minneapolis a gross profit of $5.85 per thousand feet was required to earn the same return. Considering the three large cities together in comparison with the outlying country districts, the figures indicate that the same gross margin per thousand feet would have earned approximately the same return on the investment.

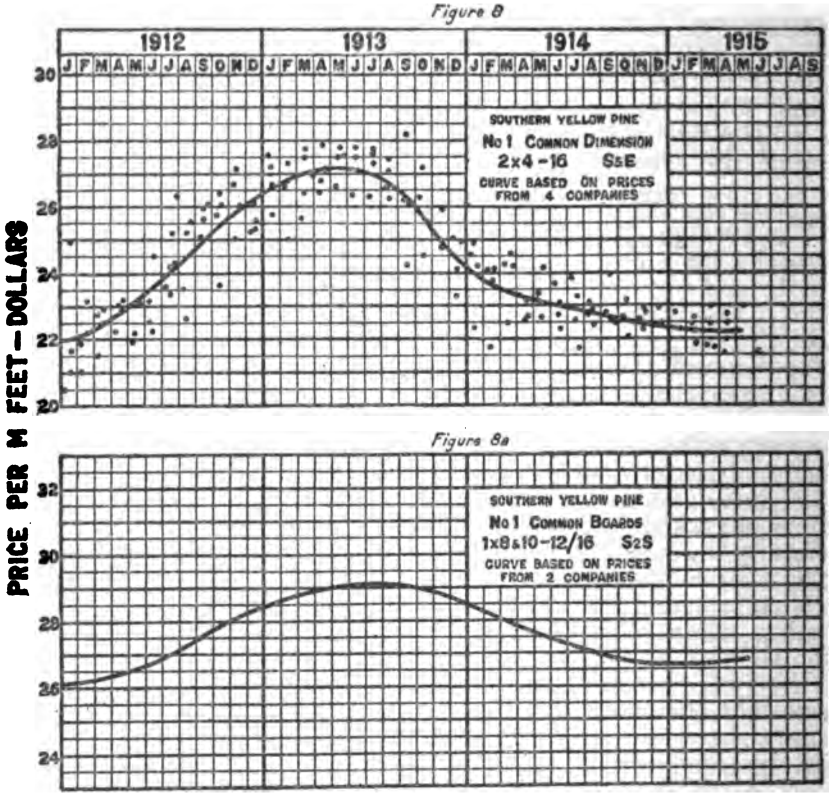
FLUCTUATIONS IN RETAIL PRICES AT LARGE CITIES.

The average price received for all the lumber handled monthly or annually by a retail yard represents an average of many different grades and patterns sold at different prices and in varying proportions. Fluctuations in the average price may be due simply to the sale of varying proportions of different priced stock. The average price received, therefore, can not be taken as a measure of price fluctuations on the same grades of lumber or as indicative of the extent of competition. Lumber is priced at the mills according to its quality or grade, finish, and size. Differences in the length or width of pieces commonly carry differences in the price per thousand feet. Many of these fine distinctions disappear in the retail trade and more uniform prices are asked for lumber of standard lengths. Variations in retail prices on the same grade thus indicate either changes in the wholesale market or competition, or both.

Manufacturers generally are of the belief that the retail prices of lumber seldom change and that the retailer reaps the benefits of low wholesale prices without passing them on to the consumer. In order to determine the extent to which retail prices are subject to fluctuations and change in sympathy with wholesale prices a number of cities and towns representing different sets of conditions were selected and the trend in retail prices during the past three and a half or four years ascertained for selected grades. Chicago, Kansas City, and Minneapolis were selected as representing the metropolitan market where many yards are located and keen competition would be expected. Prices covering a similar period were obtained at nine additional points, representing trade conditions in towns ranging in population from 6,500 down to 40. Of these points, five contained two or more yards each; the remaining four are one-yard points of less than 350 population.

TREND OF PRICES AT CHICAGO.

In figures 8 to 11 are given the price curves platted from data obtained at a number of yards in Chicago. By reference to figures 8 and 9 the basis for the curves and the manner in which they were constructed will be clear. They are drawn to represent an average of all the selling prices on the grades in question which were obtained from the different companies. The data were secured by going through the sales tickets of the several companies and recording the actual prices at which the grade of lumber was sold. Sufficient time was not available to record all the sales made or to weigh the prices according to their volume. A sufficient number of sales distributed throughout the month were selected, however, to reflect fairly the market prices at which the lumber was being sold. The sales were then averaged by months and the average price obtained by each company platted. Differences in the prices obtained by various companies held good on all the items selected, and uniform retail prices were not evidenced by any of the data.



FIGS. 8 AND 8a.—Course of retail prices, Chicago, as reflected by current sales. In fig. 8 the dots represent the monthly average of sales made by the different companies.

The retail dealers in Chicago issue a retail price list from time to time which they endeavor to follow, but the curves reflect very strikingly the extent to which they depart from it. Special effort was made to show the actual market prices as closely as possible. Discounts were deducted. The curves do not, however, represent the average prices prevailing in the market, since they are based on a limited number of sales and not on the total footage handled. The prices were obtained from four representative yards located in widely separated parts of the city. The amount of western lumber sold through retail yards in Chicago is relatively small and did not afford a sufficient volume upon which to base monthly and yearly price curves. Figures 10 and 11 reflect very strikingly the close relationship between wholesale and retail prices in a large city market like Chicago.

TREND OF PRICES AT KANSAS CITY.

Retail-price curves similar to those shown for Chicago are given for Kansas City in figures 12 to 16, inclusive. These curves were constructed in the same manner as those obtained in Chicago (see figs. 12a and 13a); and it will be noted that they follow the same course and reflect practically the same competitive conditions. In both instances retail prices rose steadily during 1912 and reached their highest point about the middle of 1913, since when they show a consistent decline to 1915. Thus they conform closely to the movement of wholesale prices over the same period, which is shown graphically in figures 14, 15, and 16. A possible exception is No. 2 Vertical Grain Flooring of Douglas fir, in which the fluctuation is not so extreme. This curve, however, is misleading, in that extreme fluctuations in the prices received by different companies are counterbalanced in the averages represented by the curve. Curves for other grades of western species were not obtainable in Kansas City.

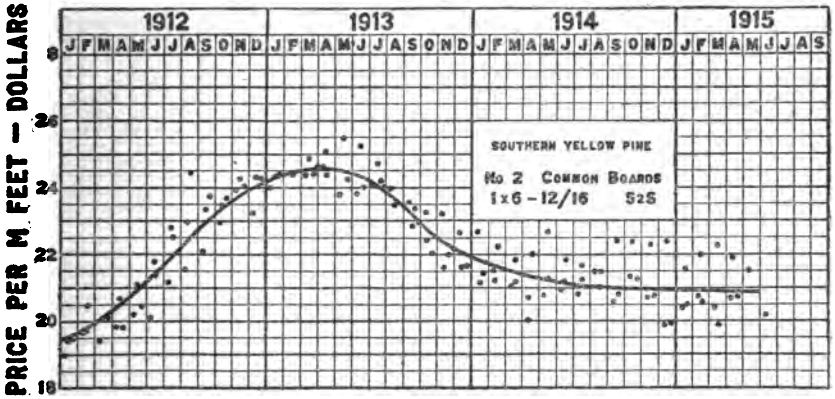


FIG. 9.—Course of retail prices, Chicago, as reflected by sales of three companies. The dots represent the monthly average of sales made by the different companies.

TREND OF RETAIL PRICES IN MINNEAPOLIS.

Retail prices at Minneapolis were obtained from two companies operating in different parts of the city and curves constructed in the same manner as for Chicago and Kansas City. Minneapolis being a northern pine market, it was necessary to select several grades of this species in order to reflect with approximate accuracy the fluctuations in monthly and yearly prices. Douglas fir flooring was the only grade of western lumber for which sufficient data could be obtained to justify a curve. The curves are given in figures 17, 18, and 19 following.

It will be noted that the trend of northern pine retail prices in Minneapolis does not conform with that shown for Douglas fir or

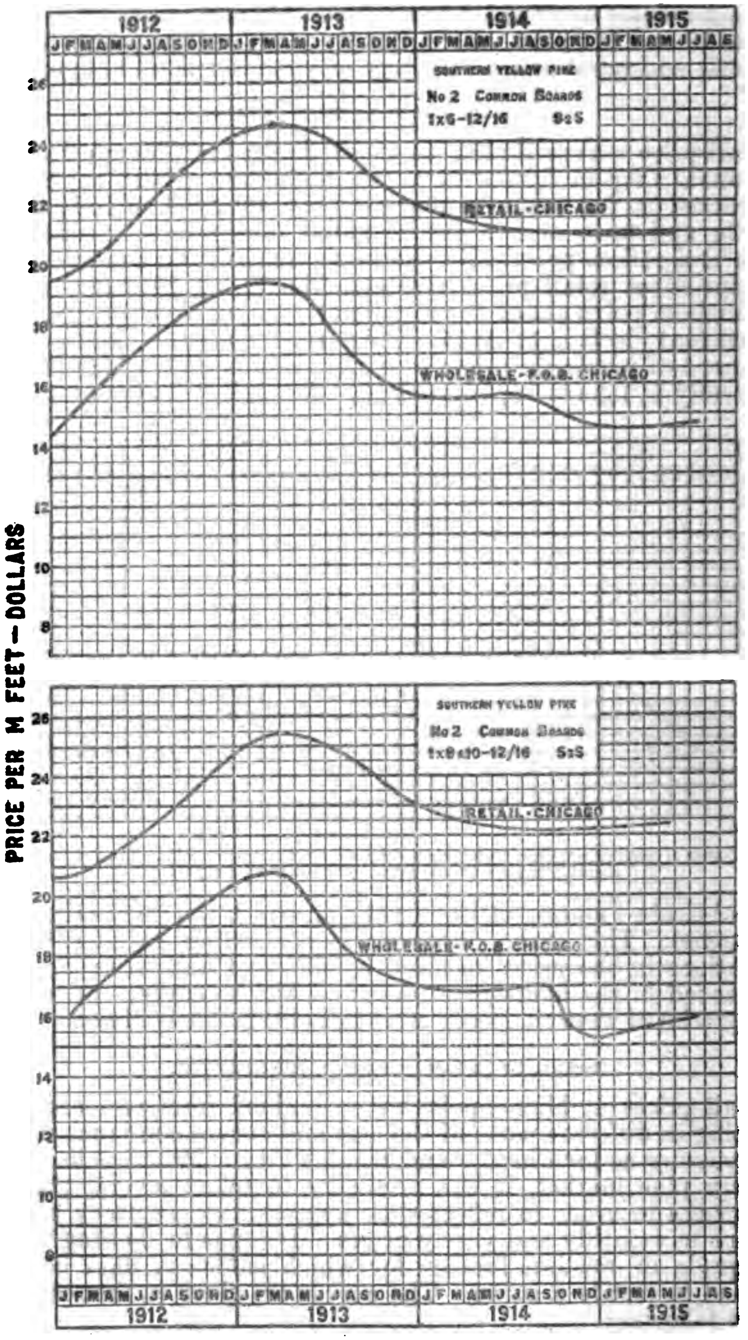


FIG. 10.—Course of retail prices, Chicago, in relation to wholesale prices.

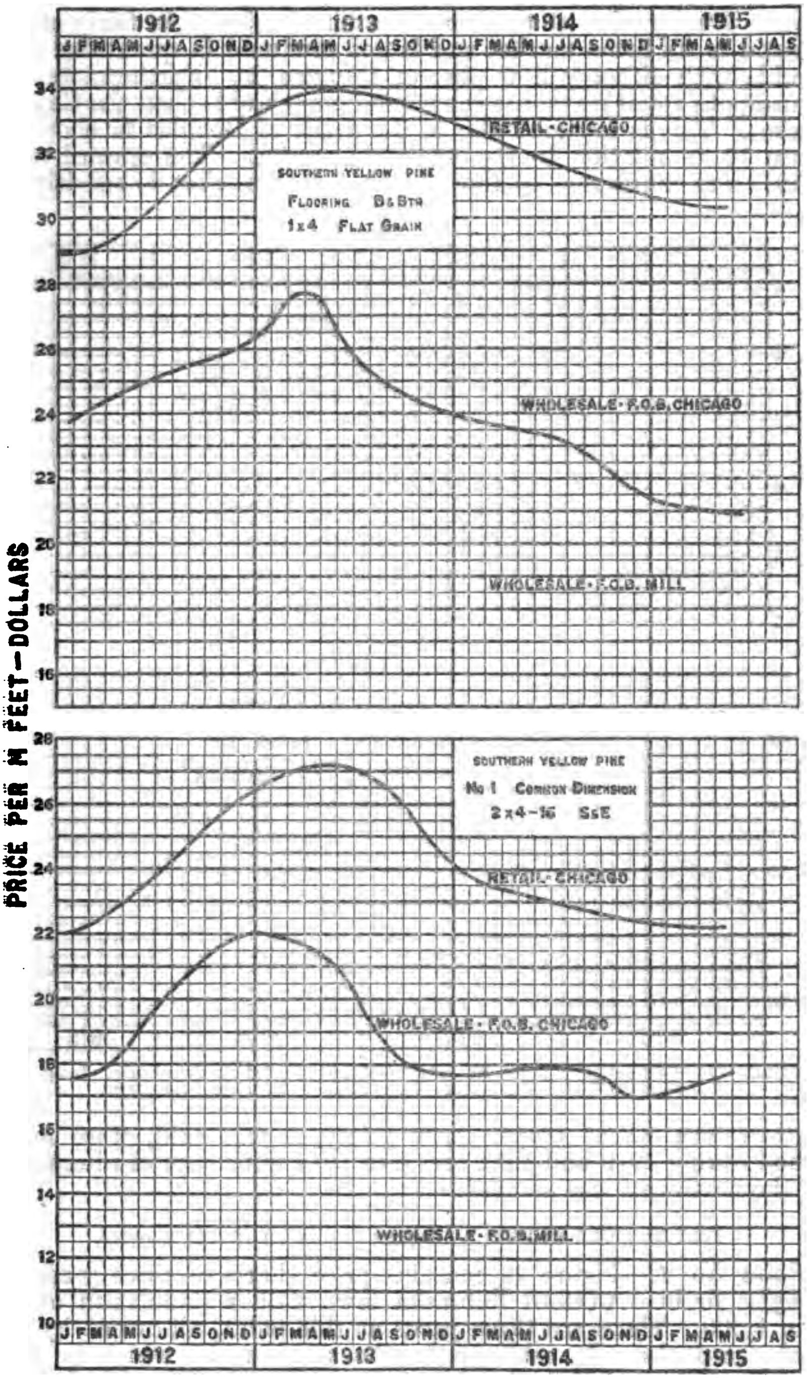
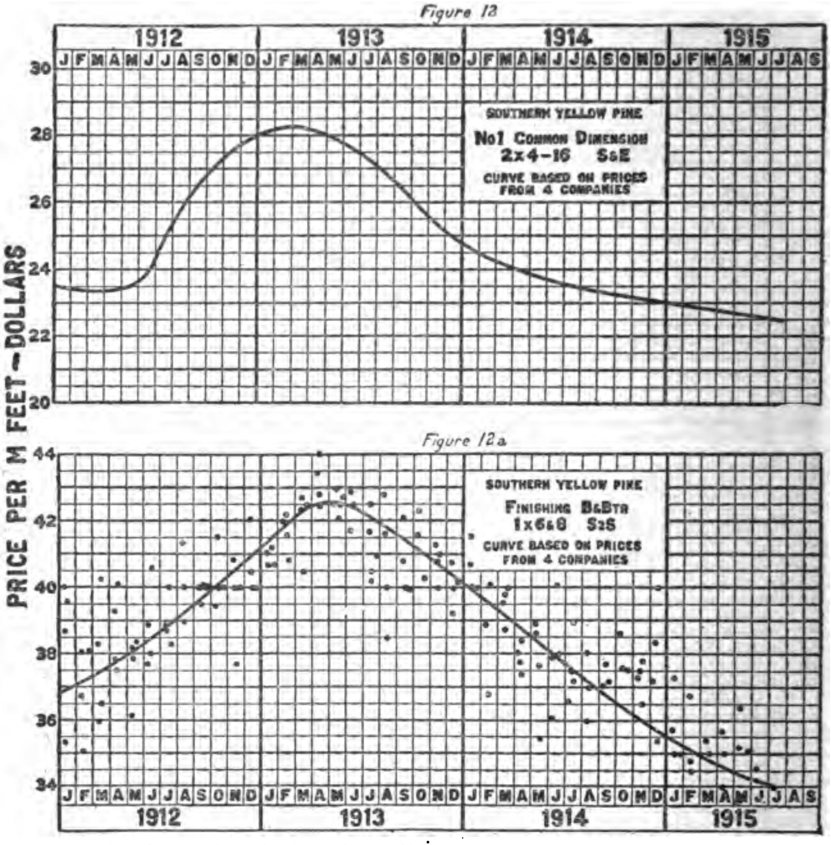


FIG. 11.—Course of retail prices, Chicago, in relation to wholesale prices.

with the curves given for Chicago and Kansas City. Lumbermen explain this by the fact that northern pine is always in fairly strong demand in its home market and is not produced in quantities comparable with either yellow pine or Douglas fir. Furthermore, the Minneapolis retail market is considered more stable than the Chicago market. This is reflected also in the grade of Douglas fir shown in figure 19 in relation to the wholesale market. The upward trend in 1912 was attributed to the fact that this market is sensitive to northwestern wheat crops. Low prices, it was said, were maintained during 1910 and 1911 and into 1912 until a good wheat crop for the northwest was assured.



FIGS. 12 AND 12a.—Course of retail prices, Kansas City, Mo., as reflected by current sales. In fig. 12 the dots represent the monthly average of sales made by the different companies.

FLUCTUATIONS IN RETAIL LUMBER PRICES AT SMALL TOWNS.

Point No. 1.—Figure 20 contains price charts of three grades of Douglas fir in a western Nebraska town with a population of less than 3,500. There are three yards at this point, all owned by line yard companies. In addition to the town trade, which in itself would not support these yards, they supply a considerable farming and ranching country. Competition is intensified by a farmers'

Figure 13

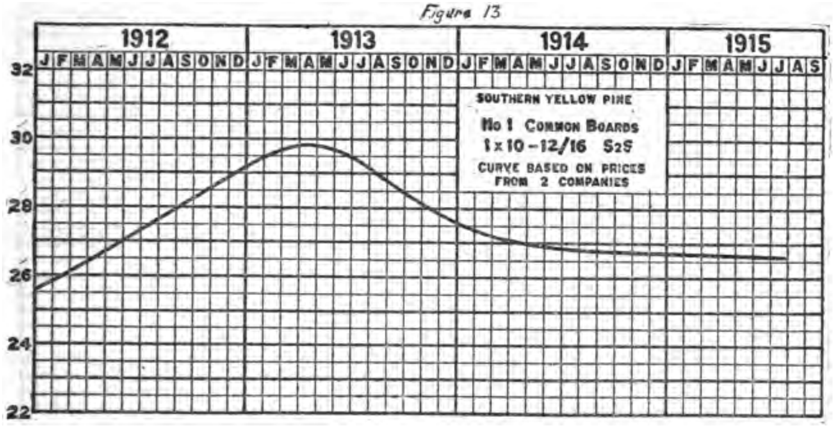


Figure 13a

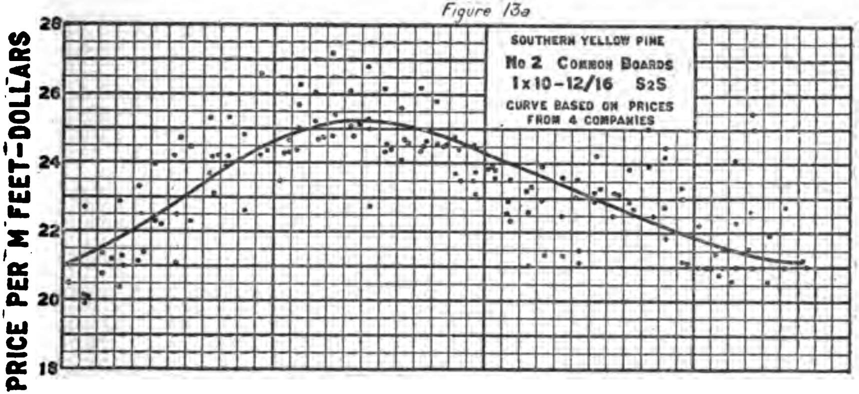
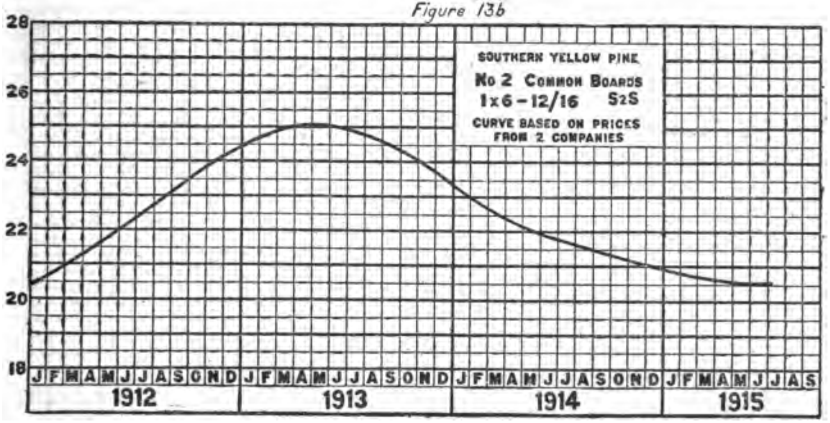


Figure 13b



FIGS. 13, 13*a*, AND 13*b*.—Course of retail prices, Kansas City, Mo., as reflected by current sales. In fig. 13*a* the dots represent the monthly average of sales made by the different companies.

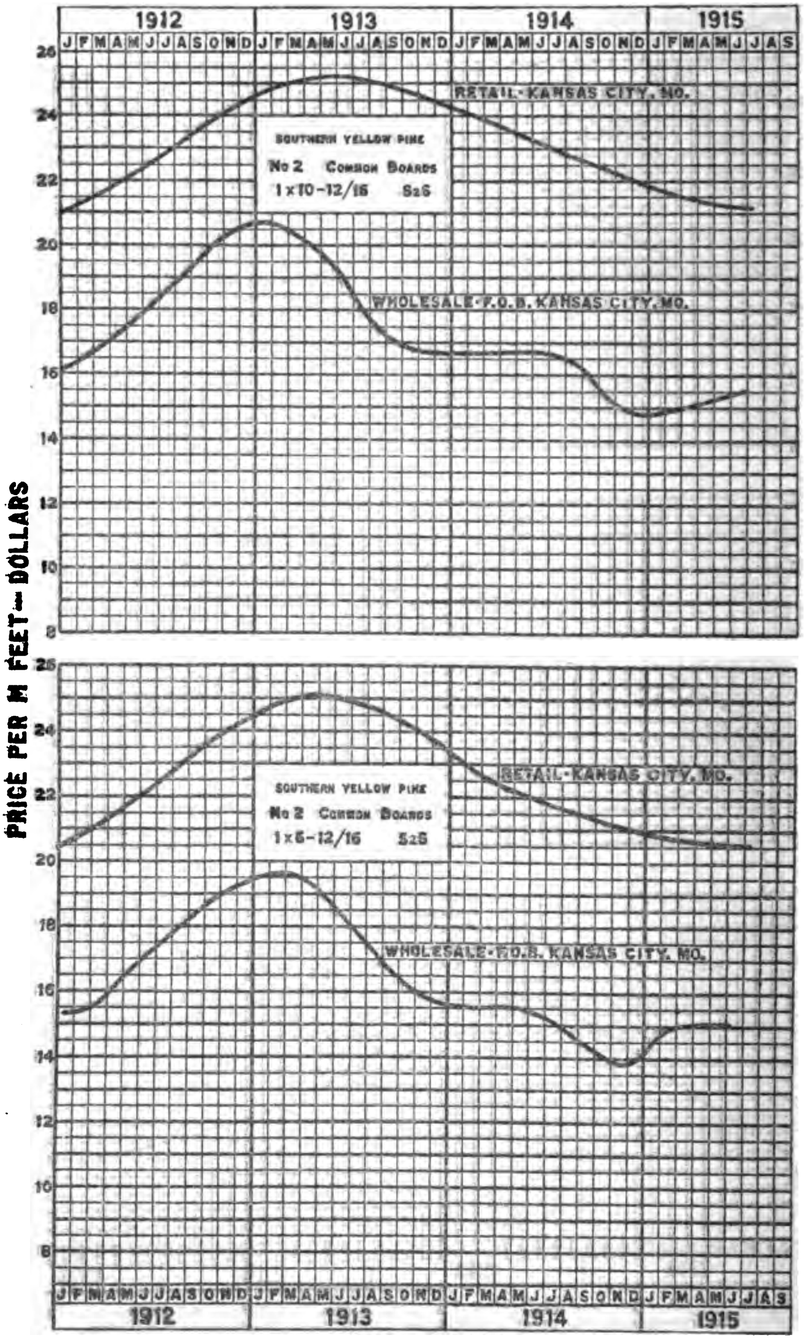


FIG. 14.—Course of retail prices, Kansas City, Mo., in relation to wholesale prices.

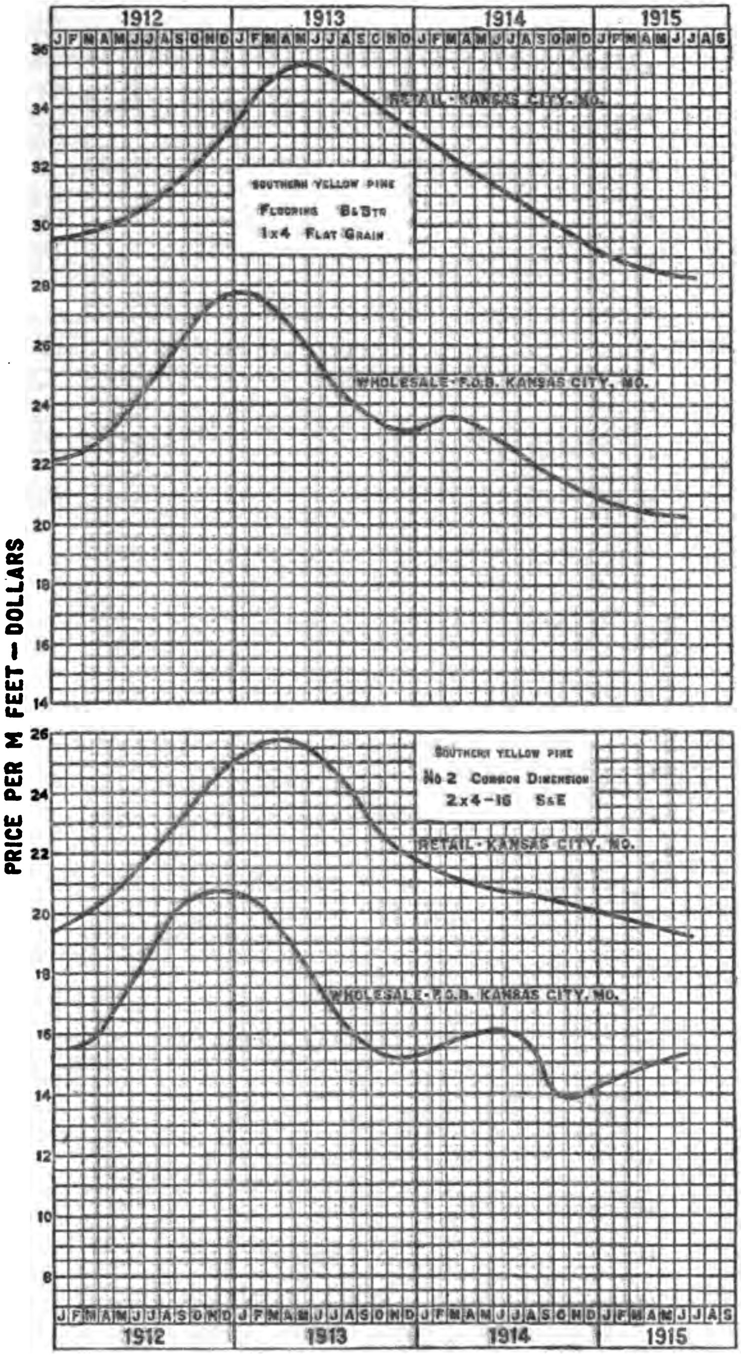


FIG. 15.—Course of retail prices, Kansas City, Mo., in relation to wholesale prices.

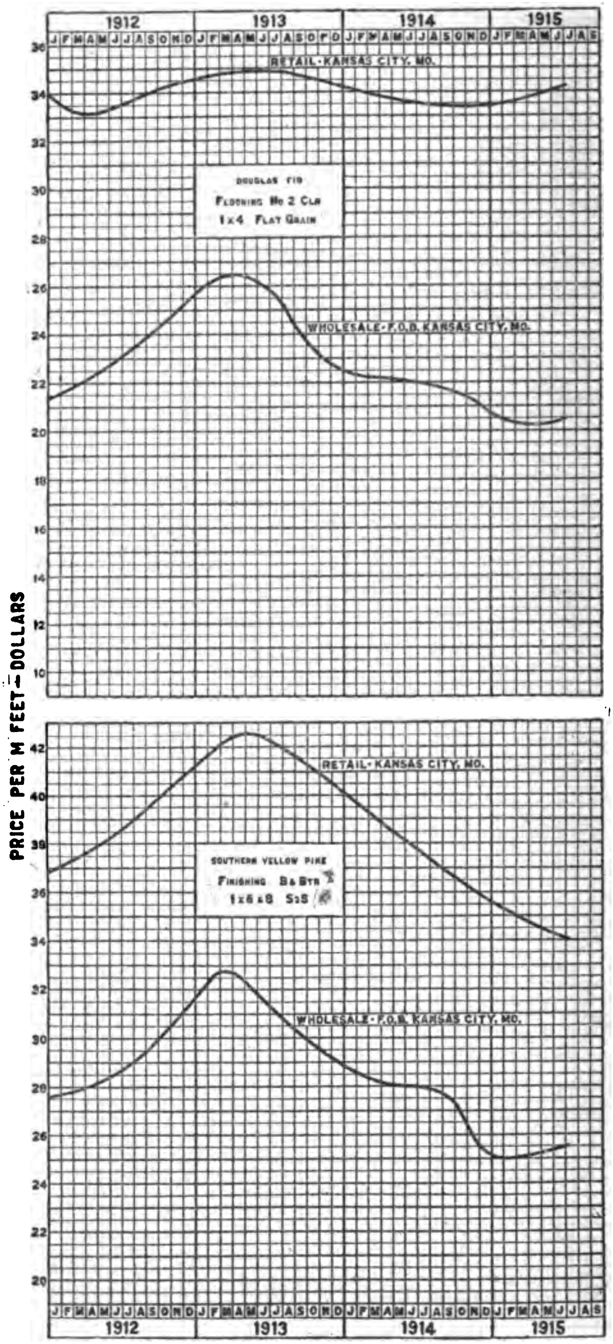


FIG. 16.—Course of retail prices, Kansas City, Mo., in relation to wholesale prices.

stock company at an adjoining town, where lower prices are in effect and to which considerable country trade which might otherwise go to X is drawn.

The curves are based on prices obtained from the sales tickets of two companies and represent an average of these two sets of prices. In order that the curves may not be misleading, it should be stated that the prices obtained by the two companies varied considerably throughout the period. All of these curves, it will be noted, show a decline during the latter half of 1912 and the first half of 1913. This trend is directly opposed to that of the wholesale market. It is due to the competition of a farmers' stock company during 1912 and 1913, as the following letter from one of the dealers will indicate:

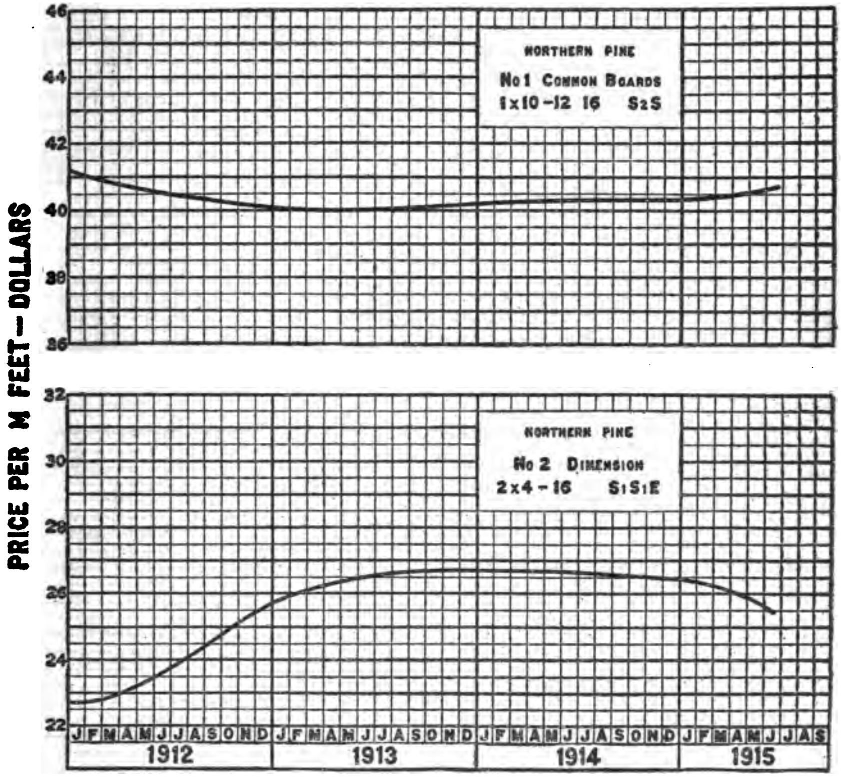


FIG. 17.—Course of retail prices, Minneapolis, Minn., as reflected by current sales of two companies.

> I am very glad to give you facts with reference to the drop in our retail lumber prices at X about the middle of 1912. We have no record of prices that were got by any others at that time, but I judge from your letter that the other companies also reduced their prices about the time that we reduced ours.
>
> I recall very distinctly the conversation that I had with several of the merchants at X regarding a peculiar situation which was affecting the X business community and which we undertook to handle in a way that would be helpful to the X community. For some months prior a number of farmers rather close to X had been driving to Z for their supplies of lumber. Incidentally the X merchants thought that they were buying much more merchandise of other sorts in Z than they would if the prices on lumber at Z had not drawn them to go there with their teams. Some of the merchants felt that lumber ought to sell in X just as cheap as it sold in Z, although they

understood that the Z prices established by a farmer's yard, which started out with the theory that a 10 per cent gross profit was all that they would need to have in order to do business profitably, were really cost prices and could not be put in effect without doing business at a loss.

For instance, some items, as I recall it, the sale of which would make up a large proportion of the sales of the yard, were selling at a margin of about $2 per thousand. I did not confer with any other lumber dealers in X and did not know what they would think about it, but I told one of the X men who knew the conditions at Z thoroughly and who felt that there ought to be some means found for the establishment of low prices in X, that so far as our company was concerned we would put our prices down to a point where we believed we could just barely get along and pay expenses and we felt that if that were done the trade would begin to come back to X and there would be no need for further agitation on the part of the merchants there. That agitation had not crystallized, but one party intimated that if no way could be found for the lumber prices at X to be as low as they were at Z, regardless of what that level might be, he would favor the establishment of a yard in X to be run, not for the purpose of profit but for the purpose of attracting trade of other sorts to the city of X; but when we reduced our prices at our yard, parties with whom I talked intimated that they felt sure that the position of the X merchants would be much better, in comparison with the Z merchants, and that they would be satisfied. I heard afterwards that the other dealers had also gone down in price, and it is a fact that if they had not gone down in price we should have sold all of the lumber practically that was sold there, because of the way everything is priced around from one yard to another.

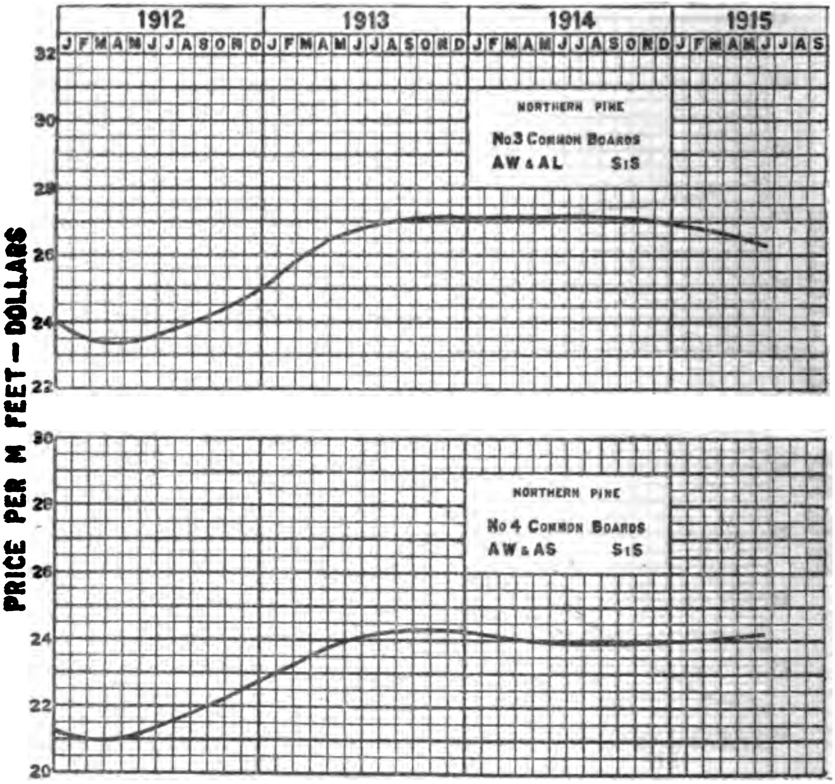


FIG. 18.—Course of retail prices, Minneapolis, Minn., as reflected by current sales of two companies.

Following this period prices returned to about the former level and held until the early part of 1915, when another decline is shown. These curves illustrate very strikingly the effect of local price competition, despite fluctuations in the wholesale market.

Point No. 2.—This is a town of over 5,000 population within a short distance of Kansas City, Mo. One other lumber yard is located at the town and the trade is primarily in southern yellow pine, although a small amount of Douglas fir flooring and other special stock is carried. Retail prices at this point (see fig. 21) followed closely the movement of wholesale prices. As a result of their proximity to Kansas City the local dealers buy close to the market, and apparently adjust their retail prices accordingly as a protection against possible outside competition.

Point No. 3.—Price data were obtained from one company at this distributing point, which is a North Dakota town of over 6,000 population. The retail trade is considered extremely competitive because of the number of yards in the town. It is one of the larger centers of the State and is located in a territory consuming both Douglas fir from the coast and western pine from the Inland Empire. Price curves for these two species are given in figures 22 and 23.

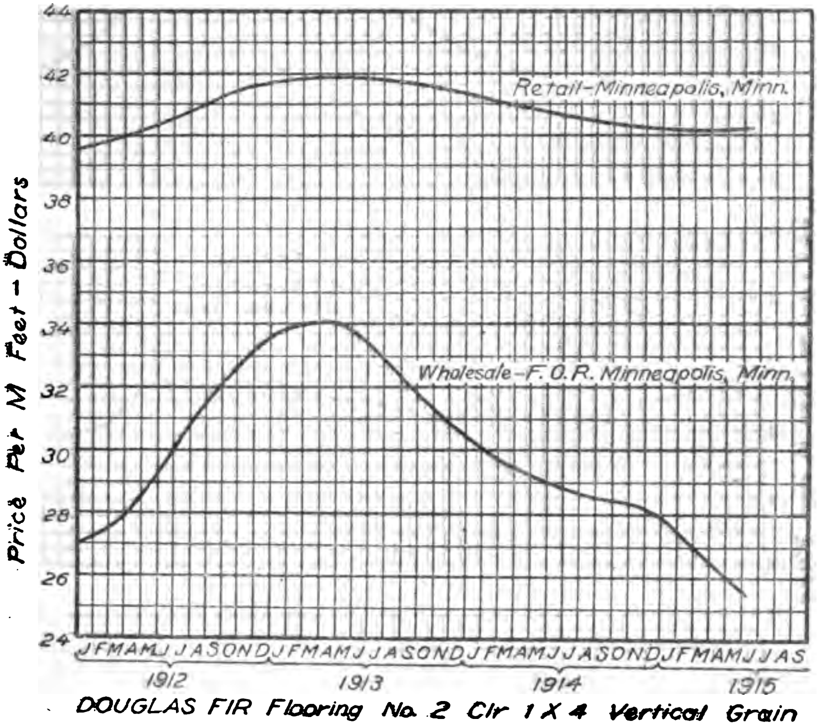


FIG. 19.—Course of retail prices, Minneapolis, Minn., in relation to wholesale prices.

In platting these curves the proportion of small and large sales was determined by an arbitrary method. The prices for material except estimates and house bills were first obtained from the sales tickets and averaged. The prices on estimates and house bills were carried on the tickets for only a portion of the period, but from these figures the average discount in such sales was ascertained. This was applied to the average price in small sales, in the ratio of their volume to the volume of estimates and house bills. The average prices obtained in the smaller sales were from 8 to 10 per cent higher than the prices shown by the curves. This use of an average discount tends to eliminate sharp monthly fluctuations due to variations in the volume of bill sales at lower prices, but it does not destroy the accuracy of the curves in reflecting the general course of prices during the period.

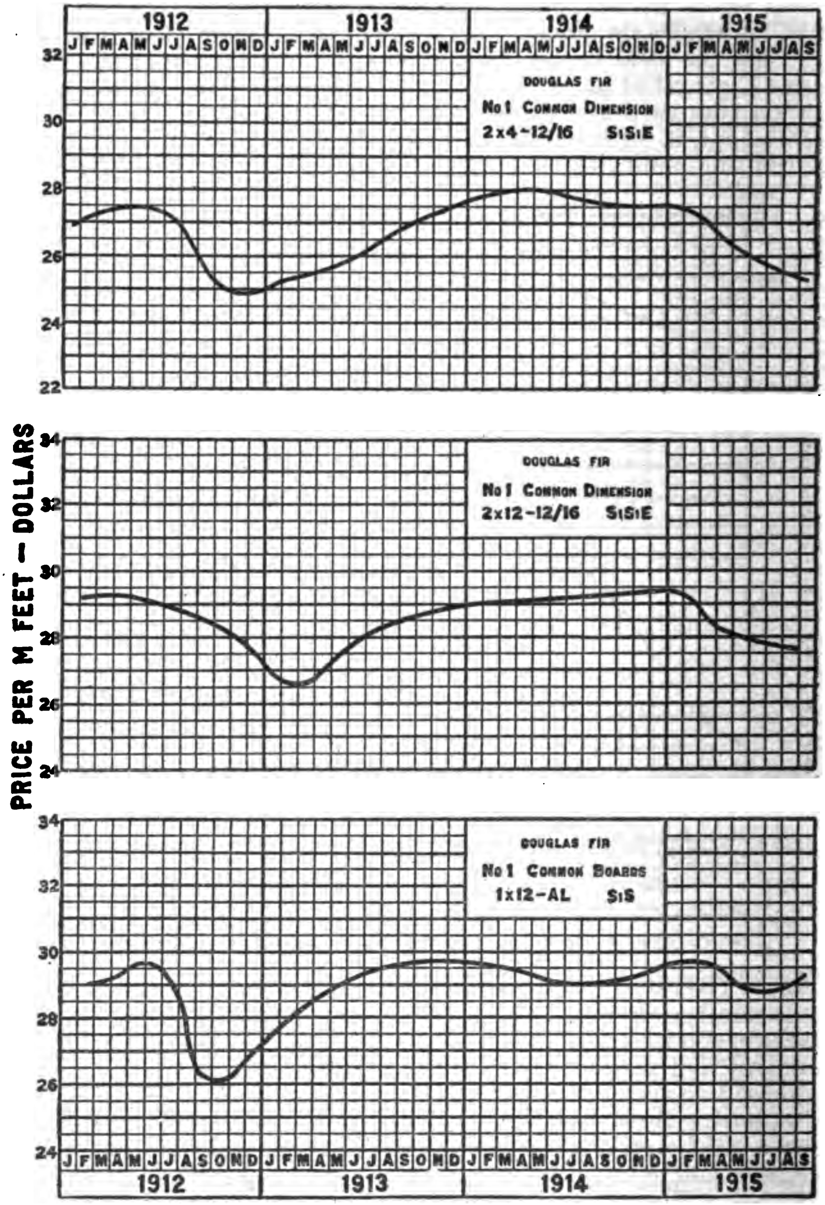


FIG. 20.—Course of retail prices at a small town in Nebraska, as reflected by current sales of two companies.

While there are striking fluctuations in the prices at this point, it will be noted that they do not conform as closely to the movement of wholesale prices as the curves given for Chicago and Kansas City.

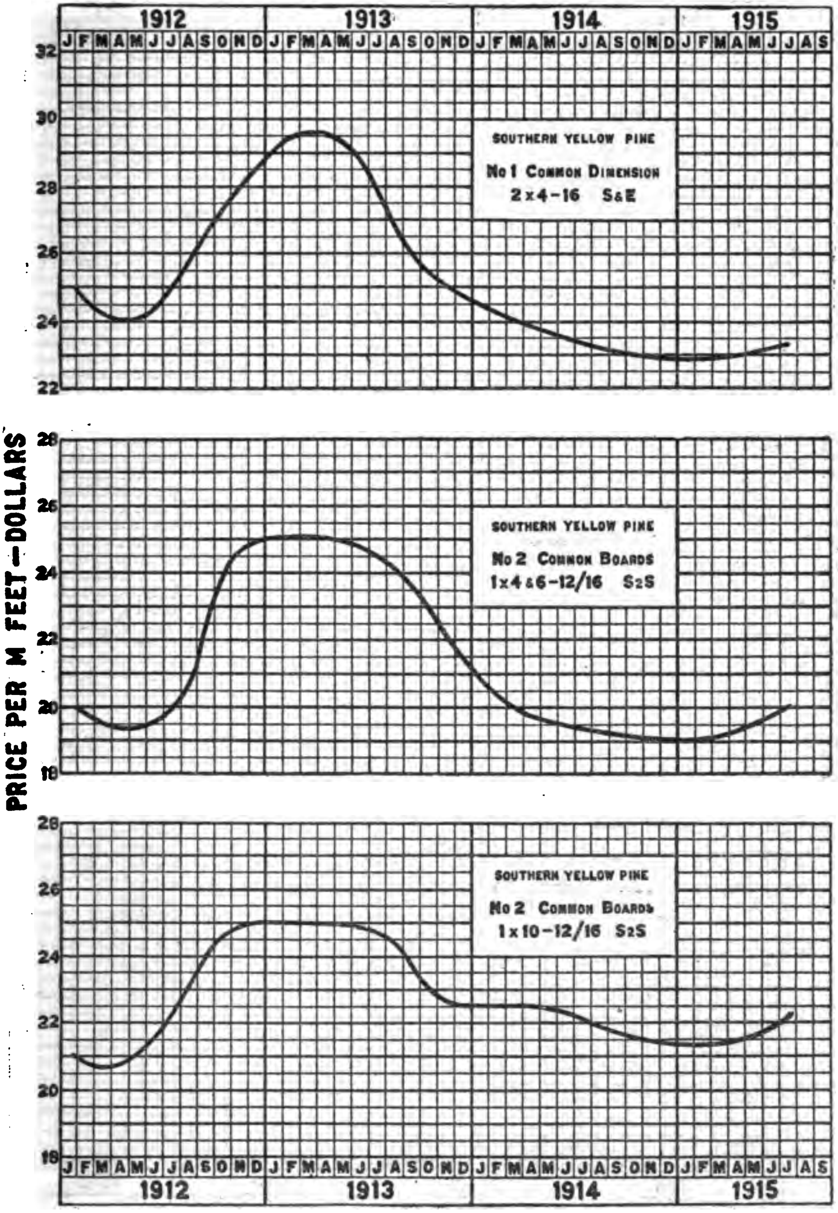


FIG. 21.—Course of retail prices, at a small town in Missouri, as reflected by current sales of one company.

They conform more closely to the movement of prices at Minneapolis and at Point No. 1 from 1913 to 1915. The explanation given for the lower prices obtaining during 1912, which was a year of rising wholesale prices, is that increases in this region were delayed until crop conditions were definitely settled. In both 1910 and 1911 the poor wheat crops in the northwestern States had a direct effect upon the lumber trade. Retail prices, therefore, were low in 1912 and remained

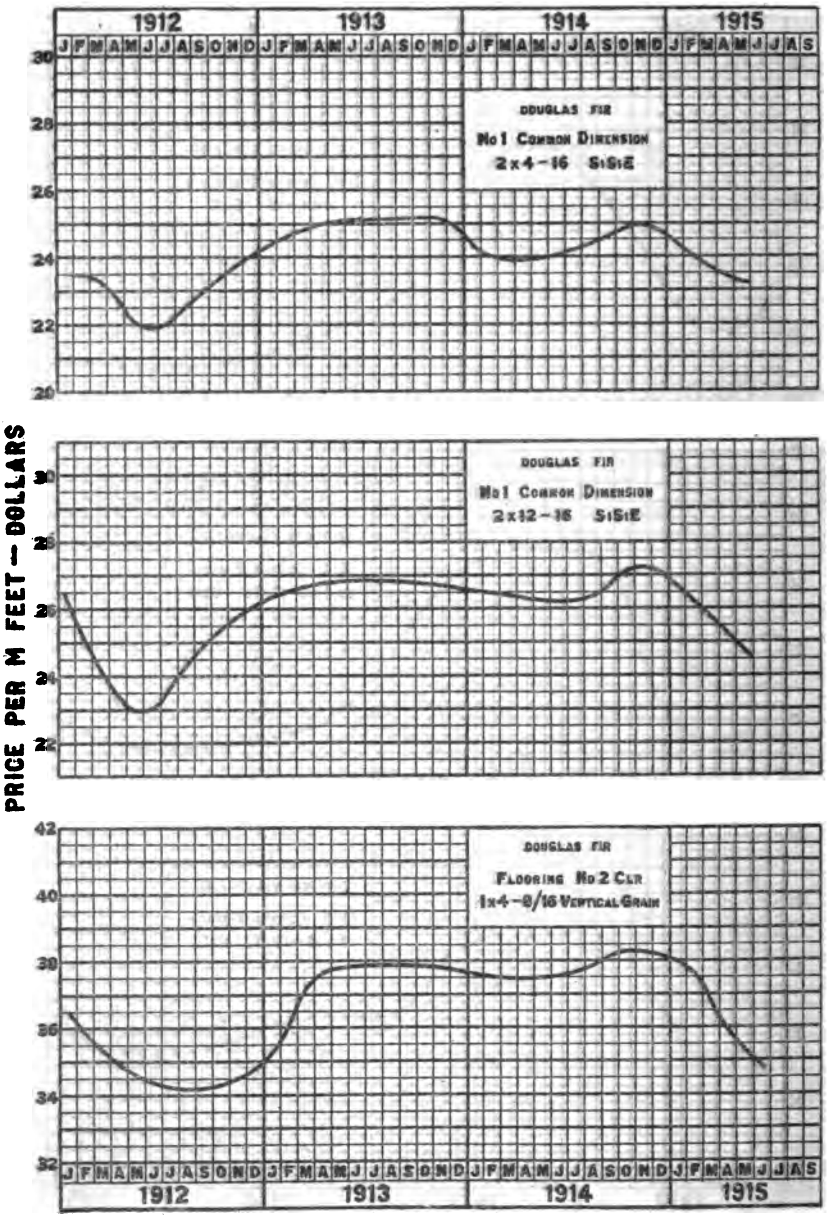


Fig. 22.—Course of retail prices, at a small town in North Dakota, as reflected by current sales of one company.

so until the large wheat crop of that year was definitely assured, when they advanced and held at a fairly uniform level until the beginning of 1915. The curves at Points Nos. 1 and 3 serve to bear out the statements of retailers generally that in most cases changes in retail prices in the smaller towns follow marked changes in wholesale prices very slowly.

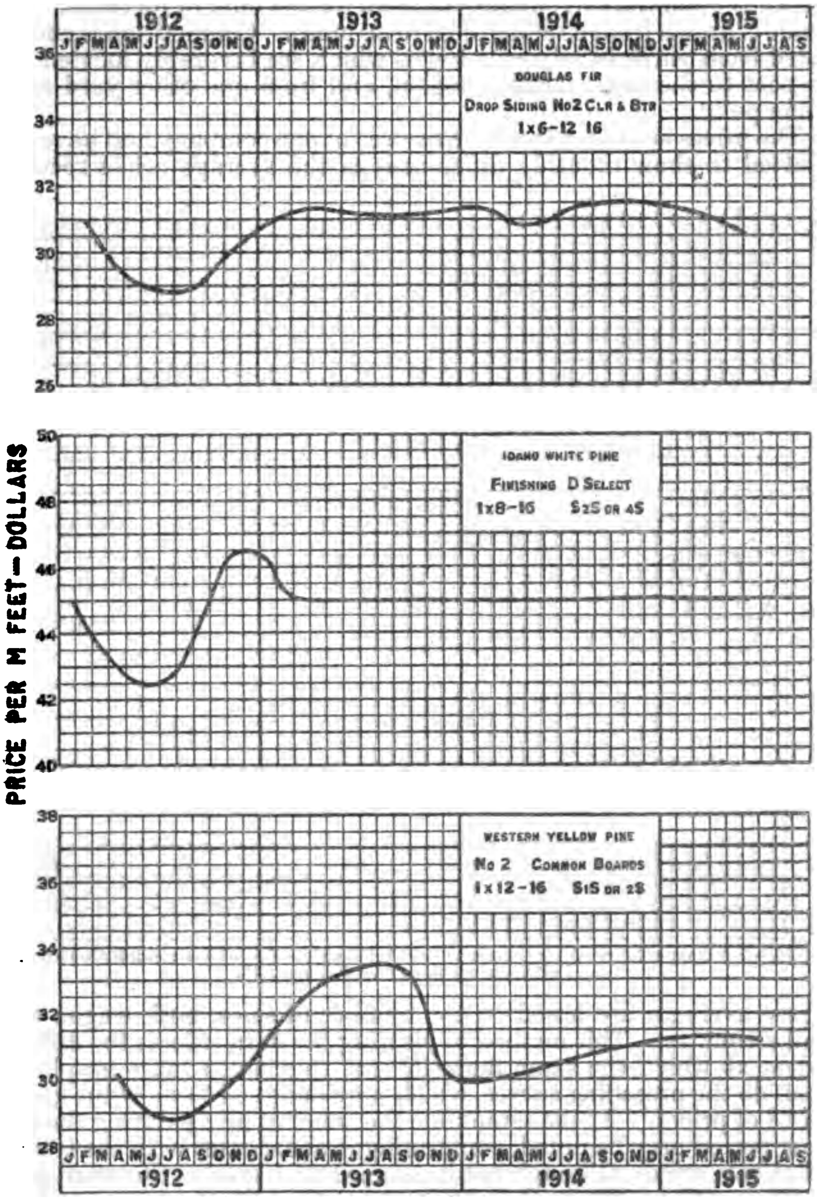


FIG. 23.—Course of retail prices, at a small town in North Dakota, as reflected by current sales of one company.

Point No. 4.—This is a small town located in eastern Colorado, and its trade is typical of that in western Nebraska and Kansas. The range of retail prices on a number of grades commonly sold at this point are shown in figure 24. It has enjoyed more or less of a boom during the past four or five years and has therefore provided a market for a great deal of lumber, although the yard in question depends upon the surrounding farmers for the bulk of its trade. This trade is drawn from a radius of 25 to 30 miles. Competition is encountered from yards in adjacent towns which are favorably located with respect to the same farming region, and from one other yard at the same point.

The prices are taken from the records of one company and have been platted to show monthly differences in the average prices received.

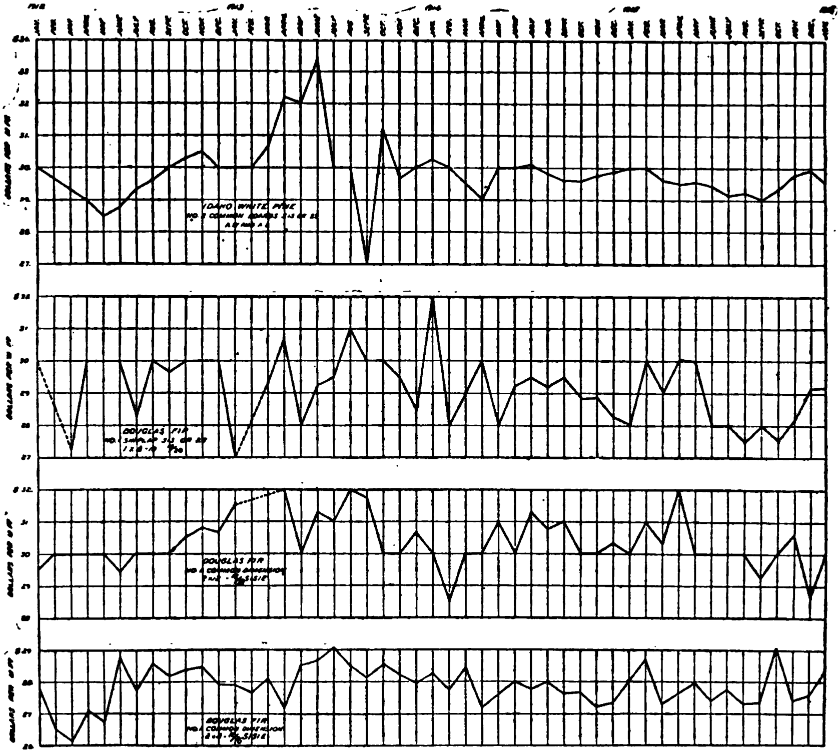


FIG. 24.—Average monthly retail prices at a small town in Colorado as shown by sale records of one company. Dotted line equals no sales during month.

These averages are based on the number of sales, both wagon trade and estimates. This method of platting the data reflects the different prices at which the same material was sold much more graphically than do the preceding curves, which were designed to show the general trend of prices. At the same time the trend of prices during the four-year period may be noted, conforming in some cases with the trend of wholesale prices, although not in as marked degree as the retail prices in large cities. While the charts show the average prices received monthly, they do not show the prices obtained in different sales during the month. An idea of these differences may be obtained by listing the prices received in individual sales during several months, as follows:

Individual sale prices of Douglas fir, No. 1 dimension, 2 by 4-12/16 S1S1E.

June, 1913.	June, 1914.	June, 1915.	June, 1913.	June, 1914.	June, 1915.	June, 1913.	June, 1914.	June, 1915.
$30.00	$28.00	$28.00	$27.00	$26.00	$30.00	$27.00	$30.00	$26.00
28.00	30.00	30.00	27.00	25.00	30.00	30.00	28.00	28.00
28.00	30.00	28.00	27.00	30.00	26.00	28.00	28.00	....
30.00	28.00	24.00	30.00	28.00	28.00	30.00	28.00	....
28.00	28.00	25.00	27.00	29.00	25.00	26.00	....	....
30.00	26.00	25.00	30.00	30.00	25.00	30.00	....	....
28.00	28.00	26.00	28.00	28.00	30.00	28.00	....	....
28.00	27.00	26.00	30.00	28.00	28.00			
30.00	28.00	30.00	28.00	25.50	30.00			

The prices have been quoted in the order in which the sales were taken from the company's records. Similar variations in the prices charged for material of the same grade were found to prevail generally throughout the trade, although in different degrees.

One-yard points.—Retail prices covering a period of several years were obtained at four one-yard points, three in Nebraska and one in South Dakota. All are towns of less than 350 population. The population of point No. 6, the smallest, is only 40. The prices at these towns are represented by figure 25. While there is but one yard at each point, the dealer depends primarily upon the outlying farming communities for his trade; in each case, therefore, potential competition is present to a greater or less degree, particularly in the case of bill sales It was found that while different prices are named for the same material, the prices in small sales adhere more closely to the dealers' lists. This was especially marked in the case of point No. 5, a small South Dakota town, where list prices were obtained in small sales throughout most of the three-year period. It is also shown that the same scale of prices for small transactions was in effect from January, 1913, until August, 1915, when prices were reduced. On the two grades platted the prices received in bill or estimate sales ranged from $1 to $8 per thousand feet less than in small sales or wagon trade. While the number of estimate sales was small compared with the number of small sales, an analysis of the business showed that in point of volume approximately 50 per cent of the material was sold on estimates. The prices, however, show little competition in the wagon trade business.

Competition at point No. 6, which is located a short distance west of Lincoln, Nebr., comes mainly from that city and is restricted almost altogether to the bill trade. Wide fluctuations appear in the monthly prices, due to the much lower rates received in sales of stock on estimates. Separate averages were compiled for the two classes of business, the results showing little variation in the prices received in small sales. The general trend of prices at this distributing point shows no sympathetic relation with fluctuations in wholesale prices. On the other hand, the prices reflect equivalent fluctuations in the estimate trade, due to local competition.

The charts show the average monthly prices received in small sales only, estimate prices not being platted. As in the case of point No. 5, prices in small sales adhered more closely to list quotations than in towns where there are several yards and competition is injected into this trade as well as the bill trade. There also were relatively few changes in list prices during the period. It was found that in some grades

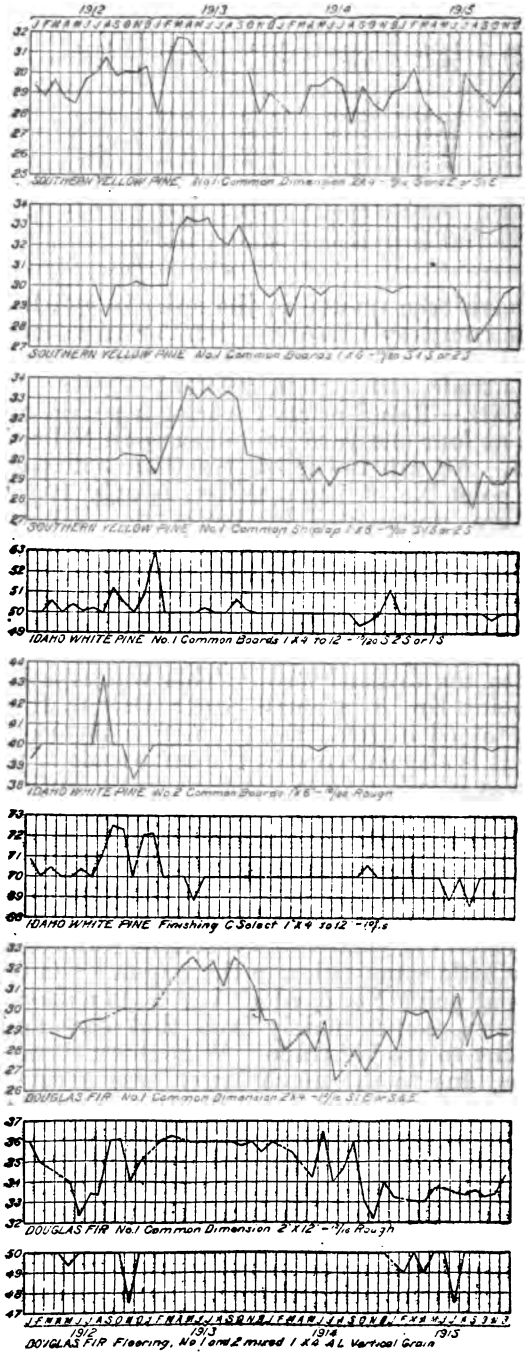


FIG. 25.—Course of retail prices at a small town in Nebraska. A one-yard point, as reflected by average monthly prices received for grades shown.

the same list rates were maintained throughout the whole period, but that the grades sold in the greatest volume were more often subject to changes in list prices.

The foregoing charts bring out very clearly the fact that list prices are by no means a true index—and in some cases not even a close index—to the average prices received by lumber dealers. They show further that in the case of the yards studied, which are believed to be sufficiently typical to indicate conditions generally prevailing, retail prices at small points do not follow fluctuations in the wholesale lumber market closely but are more subject to changes resulting from local competition. This statement, which is based upon a relatively small amount of data for such a large territory, must necessarily be construed broadly, since the great variety of conditions and methods under which lumber is retailed is bound to reflect many exceptions varying in degree.

The fact that retail prices at a rural point do not fluctuate in close or even general conformity with the wholesale market does not preclude consumers at that point from the benefits of competition. Such benefits may not come in nicely proportioned waves originating in the competition between distant mills, but may be derived from local competition of equal intensity at the distributing center itself. Thus it may occur that the aggregate fluctuations in retail prices over a considerable period due to local competition may bring as great benefits to consumers in the cost of lumber as could have been derived from the aggregate fluctuations in the wholesale market during the same period. Under intense local competition it is not uncommon for house bills to be figured at less than the cost of material plus the actual operating charges.

Point No. 9.—Retail prices at this point were obtained from a farmers' stock company. It is composed of 28 stockholders and operates in competition with a line yard at the same point, a town of 300 population in western Nebraska. Average monthly prices were obtained on several grades, merely as an index to the prices charged by companies of this type. The prices, which show little variation from month to month except a general trend downward, have not been platted, but are given on page 92 by months for the period from 1913 to 1915, inclusive.

Average monthly prices of Douglas fir per thousand feet obtained by a farmers' stock company at point No. 9.

Month.	No. 1 common dimension.		No. 2 V. G. flooring, 1 x 4–12/16.
	2 x 12–12/16.	2 x 4 to 2 x 10–12/16.	
1913.			
January	$25.00	$24.00	$38.00
February	25.00	23.00	....
March	25.00	24.00	....
April	24.50	24.00	38.00
May	25.00	24.00	....
June	25.00	24.00	35.00
July	25.00	23.50	35.50
August	24.00	23.50	35.50
September	24.00	23.50	36.00
October	24.00	23.50	36.00
November	24.00	23.75	36.00
December	24.00	24.00	36.00
1914.			
January	24.50	24.00	....
February	24.50	24.00	35.00
March	24.50	24.00	....
April	24.00	24.00	....
May	24.00	24.00	35.00
June	24.00	23.50	35.00
1914—con.			
July	$24.00	$23.50	$35.00
August	24.00	23.50	35.00
September	24.00	23.50	35.00
October	24.00	23.00	33.00
November	23.00	23.00	33.00
December	23.00	22.50	31.50
1915.			
January	23.00	22.50	33.00
February	23.00	22.00	33.00
March	23.00	22.50	32.00
April	23.00	22.00	32.00
May	23.00	21.50	32.00
June	23.00	23.00	....
July	22.00	21.00	....
August	22.00	21.00	....
September	....	21.00	....
October	....	22.00	....
November	....	22.00	....
December	....	22.00	....

These prices indicate lower rates by $1 to $3 per thousand feet than those prevailing at point No. 1, also in western Nebraska, and subject to the same freight rates, at which there are several line yards.

COMPETITION.

The price charts which have been given appear to indicate that the retail lumber business in this region is broadly competitive. However, the intensity of competition varies greatly in different towns or sections and in different classes of trade. As a broad rule, the larger purchases of lumber, including bills of material for houses, are subject to keen competition, particularly in many cities having an overabundance of dealers. This competition is less keen in country districts, where it depends upon the ability of dealers in adjoining towns or mail order houses to undersell the local yard. Even in the country trade, however, where large quantities are involved an increasing purchasing advantage is given the consumer by the various sources from which his lumber may be obtained.

As a broad rule also, competition is much less evident in small purchases, the so-called "wagon trade," except as influenced by broad consideration not related to the individual transaction. These sales are made much more generally at higher and more uniform prices often conforming closely to the published lists.

The study has also brought out strikingly the large element of haphazard in the lumber trade and the fact that its competition often is not efficient. The wide range in current prices illustrates this fact, as well as the frequent disparity in grades offered at the same or differing prices. In other words, the lumber trade is far from the effective, fully developed type of competition which in many cases may lead to a uniform price in an open market.

It should be recognized also that certain of the conditions described may represent potential competition or competitive tendencies, rather than actual competition. Various factors tend to counteract them. The entrance of new dealers into a town may not result in lumber being offered at lower prices than before, any more than an increasing number of grocery stores necessarily has a like result. Lumber prices may still be fixed by broader factors of supply and demand, by general business conditions, or indeed by agreements among a group of local dealers. Unquestionably, however, these competitive tendencies, while restrained to a greater or less degree, have gathered weight during the last few years and have resulted, as a general rule, in sharper actual competition.

Activities on the part of local dealers to restrict competition through combinations or otherwise were beyond the province of this study and no specific effort has been made to obtain information on that subject. There is no question but that various combinations or agreements among lumber retailers have existed from time to time; but these are believed to be restricted or local in character rather than forming any general combination of wide influence upon trade conditions. From the data obtained, there is little question that the effect of price fixing or other practices in restraint of trade upon the competitive character of the lumber business in the Middle West is localized and relatively unimportant. This statement is based upon the information obtained from over 2,500 annual yard operations, which, by and large, indicate competitive price movements in response to general or local trade conditions. It is believed that retailers' combinations or agreements, where they have existed or do now exist, have had only a local effect, and that trade conditions throughout the region as a whole are essentially competitive.

Two conspicuous conditions are reflected in the lumber trade of today: (1) the bargaining manner in which a large amount of retail stock is sold, and (2) the development of merchandising methods which are designed to give consumers better service. The many different prices charged for lumber of the same grade and specifications have been shown in the price data presented. The absence of standard prices is very conspicuous and is regarded by many dealers as a weakness of the trade. In innumerable cases, it appears, the customer is quoted a special price which in the dealer's judgment will fit his order. This price is based upon many factors, such as the amount of the purchase, whether it is a cash or credit sale, the customer's reputation for good or poor pay, the dealer's suspicion as to whether the customer has obtained quotations from a neighboring yard or mail-order house, etc.

This situation prevails especially in the larger sales, which are often bidding contests among dealers. Consumers who buy in small amounts usually pay higher prices and often charge the dealers with maintaining excessive rates, while those who procure house bills or make other large purchases may obtain the same meterial at from 50 cents to several dollars less per M feet. This situation appears to be the result of varying degrees of competition, although a considerable range in prices may occur from other causes. Dealers seek to compensate the close margins figured to obtain bill trade by wide margins and high prices on small retail sales. Some difference in price between the two classes of business is undoubtedly justified by the higher costs of handling small sales especially where delivery is a factor, but it would appear that a classification of the trade along standard and scientific lines would be more equitable to both dealers and consumers. It is extremely doubtful if this can be accomplished through individual efforts. It would seem to be a movement accomplished by general, open cooperation to which the public is a party.

PUBLICATION OF LUMBER PRICES.

It would seem that the extreme and frequent fluctuations in price, which inject speculative and demoralizing elements into the trade might be prevented in part by greater publicity in merchandising lumber. Sources of authentic information on lumber prices, generally available, are very limited. Many buyers and sellers of lumber are informed inadequately about the market in which they trade. Hence the market itself often tends to be indefinite, the shrewd buyer or seller has exceptional opportunities, and clear-cut, open trading is often difficult. These conditions have, of course, been accentuated by the frequent overproduction of lumber at the mills, whose influence has been felt through all stages of merchandising.

Giving current lumber prices, greater publicity, both at sawmills and in wholesale and retail markets, would tend to check extreme fluctuation in either direction. Buyers would be better fortified against unwarranted advances in price which manufacturers or dealers might seek, and the producer under pressure to sell would be better able to obtain the market value of his product and less liable to resort to indiscriminate price cutting. Manipulation of the market in either direction would seemingly be more difficult and certainly less extreme.

Such a development, furthermore, would aid in eliminating misunderstanding within the trade itself. Lumber manufacturers are seldom informed fully regarding the retail prices paid for their own products. The published "lists" available to them almost invariably are above the real prices. In periods of depression retailers have been suspected often of bearing down upon mill prices while maintaining their own rates at the old or nearly the old levels. The publication of current retail prices from an authentic source would clear up many misconceptions while giving the manufacturer information, logically his due, as a means of protecting his own interests.

It is probable, however, that the greatest benefit from a systematic publication of lumber prices would be gained by the users of lumber. The average consumer is now unable to follow the movement of lumber prices as he can follow the prices of farm produce or of industrial stocks, to determine when is the best time to build his home, or to ascertain whether his local dealer is pricing lumber in conformity with the general market. From every standpoint the lumber user would appear to be in a better position if authentic price data were available to him.

It is felt, in other words, that the lumber trade needs to be more open, that it needs something analogous to the commercial exchange where the price and quantity of each sale is posted and whoever wishes may obtain the latest data on the movements of the market. It is impossible to say just how this can be accomplished in a trade so large, complex, and widespread. In large distributing centers, like Chicago or Minneapolis, a real lumber exchange with a daily or weekly publication of the prices reported by its members would not appear impracticable. Agencies already exist in some lumber manufacturing regions which assemble and publish confidentially the mill prices received by their members. It would not appear difficult to develop organizations of this character so as to provide for a weekly publication in most of the important producing regions of the prices received for key grades of lumber in specified quantities.

Much indeed could be done by individual dealers. A long step has been taken by a large manufacturing concern in the northwest which also operates a string of retail yards. This company has adopted the "one price" policy at all of its yards, and publishes in the local press the actual prices at which and only at which its lumber is for sale to all buyers.

As far as possible developments of this nature should take place within the industry itself; but the weight of the industry as a whole should be behind them to make sure that they are sound, that they are well supported, and that the data published shall be actual, authentic prices uninfluenced in the interests of any element in the industry. The cooperation of public agencies in the compilation and publication of key prices at manufacturing and distributing points might be desirable as a means of initiating such an important development and of guaranteeing the data used. It is felt, however, that any activity of this nature should, at least ultimately, be an industrial function, brought about in the growth of more stable and more intensive methods of merchandising.

The idea is worth emphasizing here, however, because it is believed to point the way to an open, rational, unmonopolistic stabilization of the lumber market. The public will rightfully question any arbitrary method of standardizing prices which involves any form of irresponsible price fixing or price control by combination or joint agreement. Open publicity of lumber prices, however, leaving each manufacturer or dealer absolutely free in determining his own course, would be a means to rational competition, and would correct the destructive extremes of competition only in a natural and desirable way, and the consuming public would undoubtedly benefit largely from it.

IMPROVED METHODS OF MERCHANDISING.

While the retailing of lumber has not kept pace with the progressive methods of merchandising developed in the case of many other manufactured articles, more thought and progress along this line have been evidenced during the past 10 years than at any time since the industry began. This movement is showing itself in many directions—through pronounced efforts on the part of the dealer to meet consumers' needs more economically by utilizing short lengths or other cheap material suited to his requirements, and through the development of elaborate plan books of houses and farm buildings, the furnishing of ready-cut material, the issuance of phamphlets explaining the use of wood for farm purposes, etc.

This movement, which has really only begun and has an almost limitless field of possibilities, is to a large degree the outgrowth of competition among the various agencies participating in retail distribution, individually and collectively—the yard dealers, mail-order houses, mills selling direct to consumers in carload lots, and wholesalers seeking retailers' trade. It has also resulted, in part, from the aggressive merchandising of cement and other competing materials. The greatest actual competition is among yard dealers, but other sources of lumber or substitute materials exert a large influence, particularly in arousing local dealers to use more modern methods of merchandising.

As pointed out previously, the actual amount of material sold in a local community from outside sources is small, but the possibility of such sales is always present, as is the factor of comparative service in deliveries, credits, etc. The amount of lumber sold by farmers' cooperative yards is a small part of the aggregate volume retailed in the Middle West, but the great increase in the number of such yards in the farming districts and the competition which they offer is a powerful factor which dealers in such communities must consider. An illustration of the effect of the intrusion of a farmers' cooperative yard upon the prices of an established dealer is shown below:

Comparison of average annual prices per thousand feet received by a Minnesota line yard company from sales of lumber at all yards and at four individual points.

	1913	1914	1915
From all yards (over 35 in number)	$33.00	$32.50	$31.50
From yard at a 1-yard point	31.35	33.75	33.10
From yard at a 2-yard point	32.20	32.20	33.00
From yard at a 3-yard point	33.90	32.75	31.80
From yard in competition with a farmers' cooperative yard at the same point	30.70	28.60	24.60

NOTE.—Average prices determined by dividing total sales of lumber by total footage sold.

At the point at which a farmers' cooperative company was recently established, it will be noted that during a period of three years the line yard prices have been forced down approximately $6 per thousand feet. The same possibilities exist between different line yard companies or individual dealers at a given point, although probably not of so extreme a nature.

Local competitive conflicts carried to the point of eliminating one or more of the dealers are not so disastrous to the line yard company as to the individual dealer whose entire interests are centered in one yard, or to the farmers' cooperative or stock company. This obviously is due to the fact that a strong line yard company can operate several yards at cost or even at a loss for a year or more without disastrous effects upon its profits as a whole. For this reason, as well as because of its advantages in buying, it is a competitive factor which the small individual dealer may have difficulty in meeting.

PARTICIPATION OF MAUFACTURERS IN RETAILING.

Recent consideration of the retail distribution of lumber on the part of many manufacturers is undoubtedly a potential influence of a competitive nature because of the actual competition which it may develop. There have been frequent cases of interlocking directorates and still closer business connections between retailers, wholesalers, and manufacturers. In some instances a single firm has engaged in every branch of the industry. Of late, however, the increasing pressure of timberland investments and other manufacturing conditions have stimulated effort among lumber producers to participate more actively in its distribution. One of the largest lumber manufacturing companies in the country has recently acquired lines of retail yards in the Northwest, adopting a very progressive and aggressive merchandising campaign. It is already a strong influence toward more modern methods of merchandising in the territory in which it operates.

The control of retail yards generally by manufacturers, even in country communities, will be held back by the financial resources required and by the diversified nature of lumber and its sources of manufacture. From a public standpoint it is questionable whether any larger advantages would be gained. It is merely the same system under different and more centralized management and capital. The very fact that retail lumber yards in the country districts can not exist on lumber alone makes the manufacturing and distributing operations two more or less distinct businesses.

While certain economies could undoubtedly be effected by centralized control, it may be questioned whether men hired as retail dealers to advance the sale of lumber primarily can serve the public as effectively as men whose own money is in their business and who develop and apply an expert knowledge of the most economical uses of all building materials. Furthermore, a general move on the part of manufacturers to enter the distributing field by the establishment of new, competing yards rather than by the acquirement of existing yards might involve an added burden to the already heavy charges on the distribution of lumber.

On the other hand, lumber manufacturers obviously have a direct interest in the distribution of their product, which forms the bulk of the retail dealer's trade. This interest has not been applied as effectively in the past as progressive merchandising has demanded. If retailers in certain regions are charging excessive prices for lumber, or if manufacturers can develop more efficient merchandising than can independent capital, both the industry and the public will be benefited to the extent to which these conditions are bettered. Manufacturers also have an entirely legitimate interest for entering the retail field, in seeking to increase the sale of lumber. The independent dealer may have no incentive to push the sale of wood if he can make equal or larger profits on the sale of other building materials. In the nature of things, it rests upon the manufacturer to supply this incentive—by forceful participation in merchandising. This does not require necessarily the ownership of retail establishments, but may be accomplished by cooperation with independent distributing agencies through furnishing expert salesmen, demonstrations of lumber uses, advertising, and the manufacture of special products adapted to the requirements of particular sections.

As has been indicated, recent activities on the part of manufacturers to develop more progressive methods of merchandising, whether accomplished through direct competition with existing retailers or through cooperation with them, which is the preferable policy in the judgment of many lumbermen, are undoubtedly wholesome influences from the standpoint of efficiency in the retail trade and greater service to the users of lumber. The extent to which the general consumption of lumber will be actually increased thereby is, of course, problematical.

SUMMARY OF PRINCIPAL CONCLUSIONS.

(1) For the regions and species studied, the gross cost of distribution, including wholesaling, transportation, and retailing, is between 40 and 50 per cent of the retail price of lumber. Of this final price to the consumer the manufacturer takes from 50 to 60 per cent, exclusive of any wholesaling by his own organization; the wholesaler from 2 to 4 per cent; the railroad from 20 to 25 per cent; and the retailer from 20 to 25 per cent. Of the gross amount covering all distributing processes, 6 to 8 per cent is absorbed by wholesaling, 44 to 48 per cent by transportation, and 44 to 48 per cent by retailing.

These figures are broad averages and subject to wide variations as between specific sections, species, and grades. Southern yellow pine exercises by far the greatest weight in the averages, and the figures apply more closely to the distribution of this species in Mississippi Valley markets than to lumber shipped into these States from the West. In the case of Douglas fir common boards and dimensions from the Coast, for example, distribution absorbs a relatively greater per cent of the retail price. This is due primarily to heavy freight costs which absorb from 25 to 50 per cent of the price paid by the consumer.

Expressed in dollars per thousand feet and in percentages of the average retail prices prevailing in city and country trade, the distribution of the final price is approximately as shown in Table 31:

TABLE 31.—*Showing distribution of final price per 1,000 feet.*

Distribution.	City trade.		Country trade.	
	Per 1,000 feet.	Per cent.	Per 1,000 feet.	Per cent.
Manufacturer	$13.95	52.76	$15.94	51.84
Wholesaler	.92	3.47	1.06	3.44
Railroad	5.77	21.82	6.60	21.46
Retailer	5.80	21.95	7.15	23.26
Price paid by consumer	26.44	100.00	30.75	100.00

The higher price prevailing in the country trade is due in part to the higher average quality and transportation cost of the lumber handled and in part to higher average profits obtained by rural distributors.

(2) The data obtained indicate that lumber retailers are netting between 6 and 7 per cent on their investments in city operations, as shown by the yards studied in Chicago, Kansas City, and Minneapolis; and from 7 to 12 per cent in country operations through Missouri, Oklahoma, Kansas, Iowa, Nebraska, Minnesota, and the Dakotas. These ranges are averages for groups of companies and not for individual dealers.

(3) The high cost of lumber to-day as compared with 25 or 30 years ago is due primarily to economic changes which have increased costs in both the manufacture and distribution of this product. In the distributive process, the following contributing conditions may be mentioned.

(*a*) Increased transportation costs due to the increasing distances between lumber producing regions and the principal consuming markets and to the necessary substitution in the great bulk of lumber traffic of rail for the cheaper water transportation formerly used to a large extent.

(*b*) The increased investments required in the retail distribution of lumber, due to the greater variety of stock and service demanded by consumers, to the greater equipment needed for handling and properly caring for lumber stocks, and to the longer periods during which stocks must be held.

(*c*) The development of specialized service as a feature of lumber retailing, especially in the city trade, and the extension of the credit system.

(*d*) The duplication of investments in retail distribution resulting from the multiplication of yards in excess of increases in the consumption of lumber.

(*e*) The decrease in the purchasing power of money with the resulting increases in the cost of labor, taxes, supplies, etc.

While these economic causes explain the general increase in lumber prices, they have undoubtedly been accentuated at various times and in various localities by cooperative activities on the part of manufacturers and distributors, which sought in one way or another to control the lumber trade. Data regarding the specific effect of such attempted restraints of competition upon actual lumber prices are not available. But in the 11 States covered by this study the evidence goes to show that they have been almost wholly localized and to have had an unimportant part in the regional movement of lumber prices.

(4) Retail prices in the city trade fluctuate in close conformity with wholesale prices, especially on grades moving in heavy volume. In the country trade fluctuations in retail prices follow changes in wholesale prices much more slowly, as a rule, but are often extreme as the result of local competitive conditions. The data reflect consistently higher prices in small sales than in the larger, or bill, sales. The grade price of lumber per thousand feet largely disappears in bill sales, as far as the consumer is concerned. In this class of trade the entire amount, including different grades and products, is commonly sold under one aggregate price. The average price received by dealers for particular grades is therefore often assumed erroneously to be the price charged in small sales.

Competition was in evidence in the retail trade at most of the points studied, and is reflected in recent trade tendencies and changes through the Middle West. Lumber sold in large bills is subject to the keenest competition. Less keen competition or lack of competition is reflected in the small sales, which are made on a much wider margin as a rule, although in this trade also some fluctuations in price indicate the practice on the part of dealers to adjust their prices to special conditions of competition, credit, etc. Competition in the retail trade is mainly between local dealers. This is especially true in the larger cities. In the smaller cities, towns, and country communities, competition from outside sources, such as mail-order concerns, mills selling direct to the consumer, and wholesalers and retailers at nearby points, is a desirable and often a potent factor. Although the amount sold by these outside competitors is relatively small, their tendency is to develop more aggressive merchandising on the part of local dealers.

(5) Considering the location of the producing mills in relation to retail markets and the relatively small and diversified amounts in which a large percentage of lumber and other building supplies are required by many consumers, the local retail yard which assembles stock and provides expert service for the buyer has an essential place in distribution. Economies in lumber distribution may be brought about in part by developing direct trade in the classes of use for which it is practicable, and in part by greater efficiency in all distributing processes. Competition is a force always working in this direction on the one hand, but tending to levy increases in cost on the other. More effective participation in lumber distribution by manufacturers, whether through direct connections with retail yards or otherwise, should likewise be a factor in attaining greater efficiency.

(6) A very apparent weakness of the retail lumber trade is its accounting practice. The absence of standard accounting systems through which more intelligent prices may be made and sounder finance practiced is conspicuous. The development of more standardized and efficient accounting is believed to be the first necessary step to regional economies and to the initiation of scientific studies, not only of retailing but of the two other major steps in lumber distribution—wholesaling and transportation.

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PUBLICATIONS ON THE LUMBER INDUSTRY.

A study of conditions in the lumber industry was conducted by the Forest Service of the U. S. Department of Agriculture in cooperation with the Bureau of Corporations and the Federal Trade Commission during 1914 and 1915. Its object was to obtain and place before the public, in a constructive way, the essential facts regarding this industry and their bearing upon forest conservation. As part of the cooperative plan, an investigation of the export lumber trade was undertaken by the Bureau of Foreign and Domestic Commerce.

The following are bulletins on the lumber industry which the Department of Agriculture plans to publish:

Some Public and Economic Aspects of the Lumber Industry. By William B. Greeley, Assistant Forester.

A summary of the study, compiled largely from data obtained by the authors of the more detailed reports dealing with particular regions or phases of the lumber industry.

Forestry and the Lumber Industry. By Henry S. Graves, Forester.

A résumé of the practice of forestry in the United States; the methods of forestry applicable under varying economic and industrial conditions; the public aspects of private forestry; and the place of forestry in the lumber industry.

Timber Ownership and Lumber Production in the Southern Pine Region. By C. Stowell Smith, formerly Assistant District Forester.

Timber Ownership and Lumber Production in the Douglas Fir Region. By Austin Cary, Logging Engineer.

Timber Ownership and Lumber Production in the Inland Empire. By David T. Mason, Professor of Forestry at the University of California, formerly Assistant District Forester in the Forest Service.

Timber Ownership and Lumber Production in California. By C. Stowell Smith, formerly Assistant District Forester.

These four reports deal with the standing timber in the regions having the largest supply, the cost and value of stumpage, costs and returns in lumber manufacture, and the conditions existing in timber ownership and lumber production.

Public Timber and Its Use. By William B. Greeley, Assistant Forester.

A synopsis of the origin and history of the public timberlands, their present extent and character, their use under existing laws and regulations, and the policies which should govern their administration.

The Distribution of Softwood Lumber in the Middle West. Wholesale Distribution. By Ovid M. Butler, Assistant Director Forest Products Laboratory.

The Distribution of Softwood Lumber in the Middle West. Retail Distribution. By Ovid M. Butler, Assistant Director Forest Products Laboratory.

A study of lumber wholesaling and retailing in 11 of the Central States, including their costs and returns, retail and wholesale prices, lumber freights, and the division of the retail price of lumber among the various agencies concerned in its manufacture and distribution.

The Utilization of Low-Grade Lumber and Mill Waste. By Howard F. Weiss, formerly Director of the Forest Products Laboratory.

A study of the amount of low-grade lumber now produced and of mill waste, their bearing upon lumber manufacture, and possible means of putting them to more profitable use for paper, distillates, and other by-products.

The Substitution of Other Materials for Wood. By Rolf Thelen, Engineer in Forest Products.

A brief historical and statistical résumé of the replacement of wood by other structural materials.

The Adaptation of Lumber Manufacture and Grading to the Requirements of Consumers. By Harold S. Betts, Engineer in Forest Products.

A study of the possibilities of greater efficiency in adapting lumber manufacture to the ultimate use of the product and the specific needs of various classes of consumers.

The Department of Commerce also has in preparation a bulletin on "The Exportation of American Lumber," by Dr. Edward E. Pratt, Chief of the Bureau of Foreign and Domestic Commerce.

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